

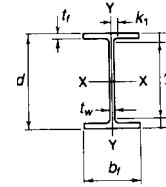
Wide Flange/H Pile
TAB (front)

Wide Flange Beams

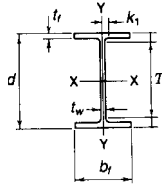
4" to 44" Sections

**Wide Flange/H Pile
TAB (back)**

**W Shapes
Dimensions**



Shapes	Area A	Depth d		Web		Flange				Distance		
				Thickness t _w		Width b _f		Thickness t _f		k ₁	T	Work- able Gage
				in.		in.		in.		in.	in.	
W 4 x 13	3.83	4.16	4 1/8	0.280	1/4	4.06	4	0.345	3/8	1/2	2 5/8	2 1/4
W 5 x 16 x 19	4.71	5.01	5	0.240	1/4	5.00	5	0.360	3/8	7/16	3 1/2	2 3/4
	5.56	5.15	5 1/8	0.270	1/4	5.03	5	0.430	7/16	7/16	3 1/2	2 3/4
W 6 x 9 x 12 x 16	2.68	5.90	5 7/8	0.170	3/16	3.94	4	0.215	3/16	1/2	4 1/2	2 1/4
	3.55	6.03	6	0.230	1/4	4.00	4	0.280	1/4	9/16	↓	↓
	4.74	6.28	6 1/4	0.260	1/4	4.03	4	0.405	3/8	9/16	↓	↓
W 6 x 15 x 20 x 25	4.43	5.99	6	0.230	1/4	5.99	6	0.260	1/4	9/16	4 1/2	3 1/2
	5.87	6.20	6 1/4	0.260	1/4	6.02	6	0.365	3/8	9/16	↓	↓
	7.34	6.38	6 3/8	0.320	5/16	6.08	6 1/8	0.455	7/16	9/16	↓	↓
W 8 x 10 x 13 x 15	2.96	7.89	7 7/8	0.170	3/16	3.94	4	0.205	3/16	1/2	6 1/2	2 1/4
	3.84	7.99	8	0.230	1/4	4.00	4	0.255	1/4	9/16	↓	↓
	4.44	8.11	8 1/8	0.245	1/4	4.02	4	0.315	5/16	9/16	↓	↓
W 8 x 18 x 21	5.26	8.14	8 1/8	0.230	1/4	5.25	5 1/4	0.330	5/16	9/16	6 1/2	2 3/4
	6.16	8.28	8 1/4	0.250	1/4	5.27	5 1/4	0.400	3/8	9/16	6 1/2	2 3/4
W 8 x 24 x 28	7.08	7.93	7 7/8	0.245	1/4	6.50	6 1/2	0.400	3/8	9/16	6 1/8	4
	8.24	8.06	8	0.285	5/16	6.54	6 1/2	0.465	7/16	5/8	6 1/8	4
W 8 x 31 x 35 x 40 x 48 x 58 x 67	9.12	8.00	8	0.285	5/16	8.00	8	0.435	7/16	3/4	5 3/4	5 1/2
	10.3	8.12	8 1/8	0.310	5/16	8.02	8	0.495	1/2	13/16	↓	↓
	11.7	8.25	8 1/4	0.360	3/8	8.07	8 1/8	0.560	9/16	13/16	↓	↓
	14.1	8.50	8 1/2	0.400	3/8	8.11	8 1/8	0.685	11/16	13/16	↓	↓
	17.1	8.75	8 3/4	0.510	1/2	8.22	8 1/4	0.810	13/16	7/8	↓	↓
	19.7	9.00	9	0.570	9/16	8.28	8 1/4	0.935	15/16	15/16	↓	↓

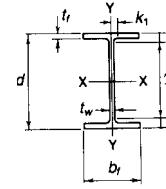


W Shapes Dimensions

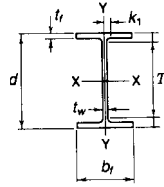
Shapes	Area A	Depth d		Web		Flange				Distance		
				Thickness t_w		Width b_f		Thickness t_f		k_1	T	Work- able Gage
				in.	in.	in.	in.	in.	in.	in.	in.	in.
W 10 x 12	3.54	9.87	9 $\frac{7}{8}$	0.190	$\frac{3}{16}$	3.96	4	0.210	$\frac{3}{16}$	$\frac{9}{16}$	8 $\frac{3}{8}$	2 $\frac{1}{4}$
x 15	4.41	10.0	10	0.230	$\frac{1}{4}$	4.00	4	0.270	$\frac{1}{4}$	$\frac{9}{16}$	↓	↓
x 17	4.99	10.1	10 $\frac{1}{8}$	0.240	$\frac{1}{4}$	4.01	4	0.330	$\frac{5}{16}$	$\frac{9}{16}$	↓	↓
x 19	5.62	10.2	10 $\frac{1}{4}$	0.250	$\frac{1}{4}$	4.02	4	0.395	$\frac{3}{8}$	$\frac{5}{8}$	↓	↓
W 10 x 22	6.49	10.2	10 $\frac{1}{8}$	0.240	$\frac{1}{4}$	5.75	5 $\frac{3}{4}$	0.360	$\frac{3}{8}$	$\frac{5}{8}$	8 $\frac{1}{4}$	2 $\frac{3}{4}$
x 26	7.61	10.3	10 $\frac{3}{8}$	0.260	$\frac{1}{4}$	5.77	5 $\frac{3}{4}$	0.440	$\frac{7}{16}$	$\frac{11}{16}$	↓	↓
x 30	8.84	10.5	10 $\frac{1}{2}$	0.300	$\frac{5}{16}$	5.81	5 $\frac{3}{4}$	0.510	$\frac{1}{2}$	$\frac{11}{16}$	↓	↓
W 10 x 33	9.71	9.73	9 $\frac{3}{4}$	0.290	$\frac{5}{16}$	7.96	8	0.435	$\frac{7}{16}$	$\frac{3}{4}$	7 $\frac{1}{2}$	5 $\frac{1}{2}$
x 39	11.5	9.92	9 $\frac{7}{8}$	0.315	$\frac{5}{16}$	7.99	8	0.530	$\frac{1}{2}$	$\frac{13}{16}$	↓	↓
x 45	13.3	10.1	10 $\frac{1}{8}$	0.350	$\frac{3}{8}$	8.02	8	0.620	$\frac{9}{8}$	$\frac{13}{16}$	↓	↓
W 10 x 49	14.4	10.0	10	0.340	$\frac{5}{16}$	10.0	10	0.560	$\frac{9}{16}$	$\frac{13}{16}$	7 $\frac{1}{2}$	5 $\frac{1}{2}$
x 54	15.8	10.1	10 $\frac{1}{8}$	0.370	$\frac{3}{8}$	10.0	10	0.615	$\frac{9}{8}$	$\frac{13}{16}$	↓	↓
x 60	17.6	10.2	10 $\frac{1}{4}$	0.420	$\frac{7}{16}$	10.1	10 $\frac{1}{8}$	0.680	$\frac{11}{16}$	$\frac{13}{16}$	↓	↓
x 68	20.0	10.4	10 $\frac{3}{8}$	0.470	$\frac{1}{2}$	10.1	10 $\frac{1}{8}$	0.770	$\frac{3}{4}$	$\frac{7}{8}$	↓	↓
x 77	22.6	10.6	10 $\frac{5}{8}$	0.530	$\frac{1}{2}$	10.2	10 $\frac{1}{4}$	0.870	$\frac{7}{8}$	$\frac{7}{8}$	↓	↓
x 88	25.9	10.8	10 $\frac{7}{8}$	0.605	$\frac{5}{8}$	10.3	10 $\frac{1}{4}$	0.990	1	$\frac{15}{16}$	↓	↓
x100	29.4	11.1	11 $\frac{1}{8}$	0.680	$\frac{11}{16}$	10.3	10 $\frac{3}{8}$	1.12	$\frac{11}{8}$	1	↓	↓
x112	32.9	11.4	11 $\frac{3}{8}$	0.755	$\frac{3}{4}$	10.4	10 $\frac{3}{8}$	1.25	$\frac{11}{4}$	1	↓	↓
W 12 x 14	4.16	11.9	11 $\frac{7}{8}$	0.200	$\frac{3}{16}$	3.97	4	0.225	$\frac{1}{4}$	$\frac{9}{16}$	10 $\frac{3}{8}$	2 $\frac{1}{4}$
x 16	4.71	12.0	12	0.220	$\frac{1}{4}$	3.99	4	0.265	$\frac{1}{4}$	$\frac{9}{16}$	↓	↓
x 19	5.57	12.2	12 $\frac{1}{8}$	0.235	$\frac{1}{4}$	4.01	4	0.350	$\frac{3}{8}$	$\frac{9}{16}$	↓	↓
x 22	6.48	12.3	12 $\frac{1}{4}$	0.260	$\frac{1}{4}$	4.03	4	0.425	$\frac{7}{16}$	$\frac{5}{8}$	↓	↓
W 12 x 26	7.65	12.2	12 $\frac{1}{4}$	0.230	$\frac{1}{4}$	6.49	6 $\frac{1}{2}$	0.380	$\frac{3}{8}$	$\frac{3}{4}$	10 $\frac{1}{8}$	3 $\frac{1}{2}$
x 30	8.79	12.3	12 $\frac{3}{8}$	0.260	$\frac{1}{4}$	6.52	6 $\frac{1}{2}$	0.440	$\frac{7}{16}$	$\frac{3}{4}$	↓	↓
x 35	10.3	12.5	12 $\frac{1}{2}$	0.300	$\frac{5}{16}$	6.56	6 $\frac{1}{2}$	0.520	$\frac{1}{2}$	$\frac{3}{4}$	↓	↓
W 12 x 40	11.7	11.9	12	0.295	$\frac{5}{16}$	8.01	8	0.515	$\frac{1}{2}$	$\frac{7}{8}$	9 $\frac{1}{4}$	5 $\frac{1}{2}$
x 45	13.1	12.1	12	0.335	$\frac{5}{16}$	8.05	8	0.575	$\frac{9}{16}$	$\frac{15}{16}$	↓	↓
x 50	14.6	12.2	12 $\frac{1}{4}$	0.370	$\frac{3}{8}$	8.08	8 $\frac{1}{8}$	0.640	$\frac{5}{8}$	$\frac{15}{16}$	↓	↓
W 12 x 53	15.6	12.1	12	0.345	$\frac{3}{8}$	10.0	10	0.575	$\frac{9}{16}$	$\frac{15}{16}$	9 $\frac{1}{4}$	5 $\frac{1}{2}$
x 58	17.0	12.2	12 $\frac{1}{4}$	0.360	$\frac{3}{8}$	10.0	10	0.640	$\frac{5}{8}$	$\frac{15}{16}$	9 $\frac{1}{4}$	5 $\frac{1}{2}$

W Shapes

Dimensions



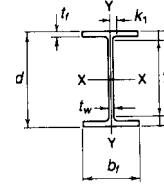
Shapes	Area A	Depth d		Web		Flange			Distance					
				Thickness t _w		Width b _f		Thickness t _f	k ₁	T	Work- able Gage			
				in.		in.		in.	in.	in.	in.			
W 12 x 65	19.1	12.1	12½	0.390	¾	12.0	12	0.605	⅝	1	9⅛	5½		
x 72	21.1	12.3	12¼	0.430	7/16	12.0	12	0.670	11/16	1 1/16	↓	↓		
x 79	23.2	12.4	12¾	0.470	½	12.1	12½	0.735	¾	1 1/16				
x 87	25.6	12.5	12½	0.515	½	12.1	12½	0.810	13/16	1 1/16				
x 96	28.2	12.7	12¾	0.550	9/16	12.2	12½	0.900	7/8	1 1/8				
x 106	31.2	12.9	12¾	0.610	⅝	12.2	12¼	0.990	1	1 1/8				
x 120	35.3	13.1	13⅝	0.710	11/16	12.3	12¾	1.11	1 1/8	1 3/16				
x 136	39.9	13.4	13¾	0.790	13/16	12.4	12¾	1.25	1 1/4	1 1/4				
x 152	44.7	13.7	13¾	0.870	7/8	12.5	12½	1.40	1 3/8	1 1/4				
x 170	50.0	14.0	14	0.960	15/16	12.6	12¾	1.56	1 9/16	1 5/16				
x 190	55.8	14.4	14¾	1.060	1 1/16	12.7	12¾	1.74	1 3/4	1 3/8				
x 210	61.8	14.7	14¾	1.180	1 3/16	12.8	12¾	1.90	1 7/8	1 7/16				
x 230	67.7	15.1	15	1.290	1 5/16	12.9	12¾	2.07	2 1/16	1 1/2				
x 252	74.0	15.4	15¾	1.400	1 3/8	13.0	13	2.25	2 1/4	1 1/2				
x 279	81.9	15.9	15¾	1.530	1 1/2	13.1	13 1/8	2.47	2 1/2	1 5/8				
x 305	89.6	16.3	16¾	1.630	1 5/8	13.2	13 1/4	2.71	2 11/16	1 5/8				
x 336	98.8	16.8	16¾	1.780	1 3/4	13.4	13¾	2.96	2 15/16	1 11/16				
W 14 x 22	6.49	13.7	13¾	0.230	¼	5.00	5	0.335	5/16	¾			11 5/8	2¾
x 26	7.69	13.9	13¾	0.255	¼	5.03	5	0.420	7/16	¾			11 5/8	2¾
W 14 x 30	8.85	13.8	13¾	0.270	¼	6.73	6¾	0.385	3/8	¾	11 5/8	3½		
x 34	10.0	14.0	14	0.285	5/16	6.75	6¾	0.455	7/16	¾	↓	↓		
x 38	11.2	14.1	14 1/8	0.310	5/16	6.77	6¾	0.515	1/2	13/16	↓	↓		
W 14 x 43	12.6	13.7	13¾	0.305	5/16	8.00	8	0.530	1/2	1	10 7/8	5½		
x 48	14.1	13.8	13¾	0.340	5/16	8.03	8	0.595	5/8	1	↓	↓		
x 53	15.6	13.9	13¾	0.370	3/8	8.06	8	0.660	11/16	1	↓	↓		
W 14 x 61	17.9	13.9	13¾	0.375	3/8	10.0	10	0.645	5/8	1	10 7/8	5½		
x 68	20.0	14.0	14	0.415	7/16	10.0	10	0.720	¾	1 1/16	↓	↓		
x 74	21.8	14.2	14 1/8	0.450	7/16	10.1	10 1/8	0.785	13/16	1 1/16	↓	↓		
x 82	24.0	14.3	14 1/4	0.510	1/2	10.1	10 1/8	0.855	7/8	1 1/16	↓	↓		
W 14 x 90	26.5	14.0	14	0.440	7/16	14.5	14 1/2	0.710	1 1/16	1 7/16	10	5½		
x 99	29.1	14.2	14 1/8	0.485	1/2	14.6	14 5/8	0.780	¾	1 7/16	↓	↓		
x 109	32.0	14.3	14¾	0.525	1/2	14.6	14 5/8	0.860	7/8	1 1/2	↓	↓		
x 120	35.3	14.5	14 1/2	0.590	9/16	14.7	14 5/8	0.940	15/16	1 1/2	↓	↓		
x 132	38.8	14.7	14 5/8	0.645	5/8	14.7	14 3/4	1.03	1	1 9/16	↓	↓		



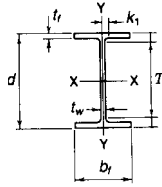
W Shapes Dimensions

Shapes	Area A	Depth d		Web		Flange				Distance		
				Thickness t _w		Width b _f		Thickness t _f		k _f	T	Work-able Gage
				in.		in.		in.		in.		in.
W 14 x 145	42.7	14.8	14¾	0.680	1¼	15.5	15½	1.09	1¼	19/16	10	3-7½-3
x 159	46.7	15.0	15	0.745	¾	15.6	15¾	1.19	1¾	19/16		
x 176	51.8	15.2	15¼	0.830	13/16	15.7	15¾	1.31	1¾	15/8		
x 193	56.8	15.5	15½	0.890	7/8	15.7	15¾	1.44	17/16	11¼/16		
x 211	62.0	15.7	15¾	0.980	1	15.8	15¾	1.56	19/16	11¼/16		
x 233	68.5	16.0	16	1.070	1¼	15.9	15¾	1.72	1¾	1¾		
x 257	75.6	16.4	16¾	1.180	13/16	16.0	16	1.89	17/8	113/16		
x 283	83.3	16.7	16¾	1.290	15/16	16.1	16½	2.07	2¼	17/8		
x 311	91.4	17.1	17½	1.410	17/16	16.2	16¼	2.26	2¼	115/16		
x 342	101.0	17.5	17½	1.540	19/16	16.4	16¾	2.47	2½	2		
x 370	109.0	17.9	17¾	1.660	15/8	16.5	16½	2.66	21¼/16	2¼		
x 398	117.0	18.3	18¼	1.770	1¾	16.6	16¾	2.85	27/8	2½		
x 426	125.0	18.7	18¾	1.880	17/8	16.7	16¾	3.04	3¼	2½		
x 455	134.0	19.0	19	2.020	2	16.8	16¾	3.21	3¾	2¼		
x 500	147.0	19.6	19¾	2.190	23/16	17.0	17	3.50	3½	25/16		
x 550	162.0	20.2	20¼	2.380	23/8	17.2	17¼	3.82	313/16	23/8		
x 605	178.0	20.9	20¾	2.600	25/8	17.4	17¾	4.16	43/16	2¼		
x 665	196.0	21.6	21¾	2.830	213/16	17.7	17¾	4.52	4½	25/8		
x 730	215.0	22.4	22¾	3.070	3¼	17.9	17¾	4.91	415/16	2¾	↓	↓
W 16 x 26	7.68	15.7	15¾	0.250	¼	5.50	5½	0.345	3/8	¾	135/8	3½
x 31	9.13	15.9	15¾	0.275	¼	5.53	5½	0.440	7/16	¾	135/8	3½
W 16 x 36	10.6	15.9	15¾	0.295	5/16	6.99	7	0.430	7/16	¾	135/8	3½
x 40	11.8	16.0	16	0.305	5/16	7.00	7	0.505	½	13/16		
x 45	13.3	16.1	16½	0.345	3/8	7.04	7	0.565	9/16	13/16		
x 50	14.7	16.3	16¼	0.380	3/8	7.07	7½	0.630	5/8	13/16		
x 57	16.8	16.4	16¾	0.430	7/16	7.12	7½	0.715	11/16	7/8	↓	↓
W 16 x 67	19.7	16.3	16¾	0.395	3/8	10.2	10¼	0.665	11/16	1	13¼	5½
x 77	22.6	16.5	16½	0.455	7/16	10.3	10¼	0.760	¾	1¼		
x 89	26.2	16.8	16¾	0.525	½	10.4	10¾	0.875	7/8	1¼		
x 100	29.5	17.0	17	0.585	9/16	10.4	10¾	0.985	1	1½	↓	↓

W Shapes Dimensions



Shapes	Area A	Depth d		Web		Flange				Distance		
				Thickness t _w		Width b _f		Thickness t _f		k ₁	T	Work-able Gage
	in. ²	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
W 18 x 35	10.3	17.7	17 ³ / ₄	0.300	⁵ / ₁₆	6.00	6	0.425	⁷ / ₁₆	³ / ₄	15 ¹ / ₂	3 ¹ / ₂
x 40	11.8	17.9	17 ⁷ / ₈	0.315	⁹ / ₁₆	6.02	6	0.525	¹ / ₂	¹³ / ₁₆	↓	↓
x 46	13.5	18.1	18	0.360	³ / ₈	6.06	6	0.605	⁵ / ₈	¹³ / ₁₆	↓	↓
W 18 x 50	14.7	18.0	18	0.355	³ / ₈	7.50	7 ¹ / ₂	0.570	⁹ / ₁₆	¹³ / ₁₆	15 ¹ / ₂	3 ¹ / ₂
x 55	16.2	18.1	18 ¹ / ₈	0.390	³ / ₈	7.53	7 ¹ / ₂	0.630	⁵ / ₈	¹³ / ₁₆	↓	↓
x 60	17.6	18.2	18 ¹ / ₄	0.415	⁷ / ₁₆	7.56	7 ¹ / ₂	0.695	¹¹ / ₁₆	¹³ / ₁₆	↓	↓
x 65	19.1	18.4	18 ³ / ₈	0.450	⁷ / ₁₆	7.59	7 ³ / ₈	0.750	³ / ₄	⁷ / ₈	↓	↓
x 71	20.8	18.5	18 ¹ / ₂	0.495	¹ / ₂	7.64	7 ⁷ / ₈	0.810	¹³ / ₁₆	⁷ / ₈	↓	↓
W 18 x 76	22.3	18.2	18 ¹ / ₄	0.425	⁷ / ₁₆	11.0	11	0.680	¹¹ / ₁₆	¹¹ / ₁₆	15 ³ / ₈	5 ¹ / ₂
x 86	25.3	18.4	18 ³ / ₈	0.480	¹ / ₂	11.1	11 ¹ / ₈	0.770	³ / ₄	¹¹ / ₁₆	↓	↓
x 97	28.5	18.6	18 ⁵ / ₈	0.535	⁹ / ₁₆	11.1	11 ¹ / ₈	0.870	⁷ / ₈	¹¹ / ₈	↓	↓
x 106	31.1	18.7	18 ³ / ₄	0.590	⁹ / ₁₆	11.2	11 ¹ / ₄	0.940	¹⁵ / ₁₆	¹¹ / ₈	↓	↓
x 119	35.1	19.0	19	0.655	⁵ / ₈	11.3	11 ¹ / ₄	1.06	¹¹ / ₁₆	¹³ / ₁₆	↓	↓
x 130	38.2	19.3	19 ¹ / ₄	0.670	¹¹ / ₁₆	11.2	11 ¹ / ₈	1.20	¹³ / ₁₆	¹³ / ₁₆	↓	↓
x 143	42.1	19.5	19 ¹ / ₂	0.730	³ / ₄	11.2	11 ¹ / ₄	1.32	¹⁵ / ₁₆	¹³ / ₁₆	↓	↓
x 158	46.3	19.7	19 ³ / ₄	0.810	¹³ / ₁₆	11.3	11 ¹ / ₄	1.44	¹⁷ / ₁₆	¹¹ / ₄	↓	↓
x 175	51.3	20.0	20	0.890	⁷ / ₈	11.4	11 ³ / ₈	1.59	¹⁹ / ₁₆	¹¹ / ₄	↓	↓
x 192	56.4	20.4	20 ³ / ₈	0.960	¹⁵ / ₁₆	11.5	11 ¹ / ₂	1.75	¹³ / ₄	¹¹ / ₈	↓	↓
x 211	62.1	20.7	20 ⁵ / ₈	1.060	¹¹ / ₁₆	11.6	11 ¹ / ₂	1.91	¹¹⁵ / ₁₆	¹³ / ₁₆	15 ¹ / ₂	↓
x 234	68.8	21.1	21	1.160	¹³ / ₁₆	11.7	11 ⁵ / ₈	2.11	²¹ / ₈	¹³ / ₁₆	↓	↓
x 258	75.9	21.5	21 ¹ / ₂	1.280	¹ / ₄	11.8	11 ³ / ₄	2.30	²⁵ / ₁₆	¹¹ / ₄	↓	↓
x 283	83.3	21.9	21 ⁷ / ₈	1.400	¹ / ₈	11.9	11 ⁷ / ₈	2.50	²¹ / ₂	¹⁵ / ₁₆	↓	↓
x 311	91.6	22.3	22 ³ / ₈	1.520	¹ / ₂	12.0	12	2.74	²³ / ₄	¹³ / ₈	↓	↓
W 21 x 44	13.0	20.7	20 ⁵ / ₈	0.350	³ / ₈	6.50	6 ¹ / ₂	0.450	⁷ / ₁₆	¹³ / ₁₆	18 ³ / ₈	3 ¹ / ₂
x 50	14.7	20.8	20 ⁷ / ₈	0.380	³ / ₈	6.53	6 ¹ / ₂	0.535	⁹ / ₁₆	¹³ / ₁₆	↓	↓
x 57	16.7	21.1	21	0.405	³ / ₈	6.56	6 ¹ / ₂	0.650	⁵ / ₈	¹³ / ₁₆	↓	↓
W 21 x 48	14.1	20.6	20 ⁵ / ₈	0.350	³ / ₈	8.14	8 ¹ / ₈	0.430	⁷ / ₁₆	¹³ / ₁₆	18 ³ / ₈	5 ¹ / ₂
x 55	16.2	20.8	20 ³ / ₄	0.375	³ / ₈	8.22	8 ¹ / ₄	0.522	¹ / ₂	¹³ / ₁₆	↓	↓
x 62	18.3	21.0	21	0.400	³ / ₈	8.24	8 ¹ / ₄	0.615	⁵ / ₈	¹³ / ₁₆	↓	↓
x 68	20.0	21.1	21 ¹ / ₈	0.430	⁷ / ₁₆	8.27	8 ¹ / ₄	0.685	¹¹ / ₁₆	⁷ / ₈	↓	↓
x 73	21.5	21.2	21 ¹ / ₄	0.455	⁷ / ₁₆	8.30	8 ¹ / ₄	0.740	³ / ₄	⁷ / ₈	↓	↓
x 83	24.3	21.4	21 ³ / ₈	0.515	¹ / ₂	8.36	8 ³ / ₈	0.835	¹³ / ₁₆	⁷ / ₈	↓	↓
x 93	27.3	21.6	21 ⁵ / ₈	0.058	⁹ / ₁₆	8.42	8 ³ / ₈	0.930	¹⁵ / ₁₆	¹⁵ / ₁₆	↓	↓

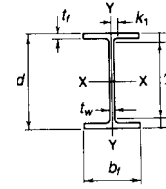


W Shapes Dimensions

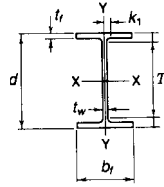
Shapes	Area A	Depth d		Web		Flange				Distance		
				Thickness t_w		Width b_f		Thickness t_f		k_f	T	Work- able Gage
				in.	in.	in.	in.	in.	in.	in.	in.	
W 21 x 101	29.8	21.4	21 $\frac{3}{8}$	0.500	$\frac{1}{2}$	12.3	12 $\frac{1}{4}$	0.800	$\frac{13}{16}$	$1\frac{1}{16}$	18	5 $\frac{1}{2}$
x 111	32.7	21.5	21 $\frac{1}{2}$	0.550	$\frac{9}{16}$	12.3	12 $\frac{3}{8}$	0.875	$\frac{7}{8}$	$1\frac{1}{8}$	↓	↓
x 122	35.9	21.7	21 $\frac{5}{8}$	0.600	$\frac{5}{8}$	12.4	12 $\frac{3}{8}$	0.960	$\frac{15}{16}$	$1\frac{1}{8}$		
x 132	38.8	21.8	21 $\frac{7}{8}$	0.650	$\frac{5}{8}$	12.4	12 $\frac{1}{2}$	1.04	$1\frac{1}{16}$	$1\frac{1}{8}$		
x 147	43.2	22.1	22	0.720	$\frac{3}{4}$	12.5	12 $\frac{1}{2}$	1.15	$1\frac{1}{8}$	$1\frac{3}{16}$		
x 166	48.8	22.5	22 $\frac{1}{2}$	0.750	$\frac{3}{4}$	12.4	12 $\frac{3}{8}$	1.36	$1\frac{3}{8}$	$1\frac{3}{16}$		
x 182	53.6	22.7	22 $\frac{3}{4}$	0.830	$\frac{13}{16}$	12.5	12 $\frac{1}{2}$	1.48	$1\frac{1}{2}$	$1\frac{1}{4}$		
x 201	59.2	23.0	23	0.910	$\frac{15}{16}$	12.6	12 $\frac{5}{8}$	1.63	$1\frac{5}{8}$	$1\frac{5}{16}$		
W 24 x 55	16.2	23.6	23 $\frac{3}{8}$	0.395	$\frac{3}{8}$	7.01	7	0.505	$\frac{1}{2}$	1	20 $\frac{3}{4}$	3 $\frac{1}{2}$
x 62	18.2	23.7	23 $\frac{3}{4}$	0.430	$\frac{7}{16}$	7.04	7	0.590	$\frac{9}{16}$	$1\frac{1}{16}$	20 $\frac{3}{4}$	3 $\frac{1}{2}$
W 24 x 68	20.1	23.7	23 $\frac{3}{4}$	0.415	$\frac{7}{16}$	8.97	9	0.585	$\frac{9}{16}$	$1\frac{1}{16}$	20 $\frac{3}{4}$	5 $\frac{1}{2}$
x 76	22.4	23.9	23 $\frac{7}{8}$	0.440	$\frac{7}{16}$	8.99	9	0.680	$\frac{11}{16}$	$1\frac{1}{16}$	↓	↓
x 84	24.7	24.1	24 $\frac{1}{8}$	0.470	$\frac{1}{2}$	9.02	9	0.770	$\frac{3}{4}$	$1\frac{1}{16}$		
x 94	27.7	24.3	24 $\frac{1}{4}$	0.515	$\frac{1}{2}$	9.07	9 $\frac{1}{8}$	0.875	$\frac{7}{8}$	$1\frac{1}{16}$		
x 103	30.3	24.5	24 $\frac{1}{2}$	0.550	$\frac{9}{16}$	9.00	9	0.980	1	$1\frac{1}{8}$		
W 24 x 104	30.6	24.1	24	0.500	$\frac{1}{2}$	12.8	12 $\frac{3}{4}$	0.750	$\frac{3}{4}$	$1\frac{1}{16}$		
x 117	34.4	24.3	24 $\frac{1}{4}$	0.550	$\frac{9}{16}$	12.8	12 $\frac{3}{4}$	0.850	$\frac{7}{8}$	$1\frac{1}{8}$	↓	↓
x 131	38.5	24.5	24 $\frac{1}{2}$	0.605	$\frac{5}{8}$	12.9	12 $\frac{7}{8}$	0.960	$\frac{15}{16}$	$1\frac{1}{8}$		
x 146	43.0	24.7	24 $\frac{3}{4}$	0.650	$\frac{5}{8}$	12.9	12 $\frac{7}{8}$	1.09	$1\frac{1}{16}$	$1\frac{1}{8}$		
x 162	47.7	25.0	25	0.705	$\frac{11}{16}$	13.0	13	1.22	$1\frac{1}{4}$	$1\frac{3}{16}$		
x 176	51.7	25.2	25 $\frac{1}{4}$	0.750	$\frac{3}{4}$	12.9	12 $\frac{7}{8}$	1.34	$1\frac{5}{16}$	$1\frac{3}{16}$		
x 192	56.3	25.5	25 $\frac{1}{2}$	0.810	$\frac{13}{16}$	13.0	13	1.46	$1\frac{7}{16}$	$1\frac{1}{4}$		
x 207	60.7	25.7	25 $\frac{3}{4}$	0.870	$\frac{7}{8}$	13.0	13	1.57	$1\frac{9}{16}$	$1\frac{1}{4}$		
x 229	67.2	26.0	26	0.960	$\frac{15}{16}$	13.1	13 $\frac{1}{8}$	1.73	$1\frac{3}{4}$	$1\frac{5}{16}$		
x 250	73.5	26.3	26 $\frac{3}{8}$	1.04	$1\frac{1}{16}$	13.2	13 $\frac{1}{8}$	1.89	$1\frac{7}{8}$	$1\frac{3}{8}$		
x 279	82.0	26.7	26 $\frac{3}{4}$	1.16	$1\frac{3}{16}$	13.3	13 $\frac{1}{4}$	2.09	$2\frac{1}{16}$	$1\frac{7}{16}$		
x 306	89.9	27.1	27 $\frac{1}{8}$	1.26	$1\frac{1}{4}$	13.4	13 $\frac{3}{8}$	2.28	$2\frac{1}{4}$	$1\frac{7}{16}$		
x 335	98.4	27.5	27 $\frac{1}{2}$	1.38	$1\frac{3}{8}$	13.5	13 $\frac{1}{2}$	2.48	$2\frac{1}{2}$	$1\frac{1}{2}$		
x 370	109.0	28.0	28	1.52	$1\frac{1}{2}$	13.7	13 $\frac{3}{8}$	2.72	$2\frac{3}{4}$	$\frac{9}{16}$		

W Shapes

Dimensions



Shapes	Area A	Depth d		Web		Flange				Distance		
				Thickness t _w		Width b _f		Thickness t _f		k ₁	T	Work- able Gage
				in.	in.	in.	in.	in.	in.	in.	in.	
W 27 x 84	24.8	26.7	26 ³ / ₄	0.460	7 ¹ / ₁₆	10.0	10	0.640	5 ⁸ / ₁₆	1 ¹ / ₁₆	23 ⁵ / ₈	5 ¹ / ₂
x 94	27.7	26.9	26 ⁷ / ₈	0.490	1 ¹ / ₂	10.0	10	0.745	3 ⁴ / ₁₆	1 ¹ / ₁₆	↓	↓
x 102	30.0	27.1	27 ¹ / ₈	0.515	1 ¹ / ₂	10.0	10	0.830	1 ³ / ₁₆	1 ¹ / ₁₆	↓	↓
x 114	33.5	27.3	27 ¹ / ₄	0.570	9 ¹ / ₁₆	10.1	10 ¹ / ₈	0.930	1 ⁵ / ₁₆	1 ¹ / ₈	↓	↓
x 129	37.8	27.6	27 ⁵ / ₈	0.610	5 ⁸ / ₁₆	10.0	10	1.10	1 ¹ / ₈	1 ¹ / ₈	↓	↓
W 27 x 146	43.1	27.4	27 ³ / ₈	0.605	5 ⁸ / ₁₆	14.0	14	0.975	1	1 ¹ / ₈	23 ⁵ / ₈	5 ¹ / ₂
x 161	47.6	27.6	27 ⁵ / ₈	0.660	1 ¹ / ₁₆	14.0	14	1.08	1 ¹ / ₁₆	1 ³ / ₁₆	↓	↓
x 178	52.5	27.8	27 ³ / ₄	0.725	3 ⁴ / ₁₆	14.1	14 ¹ / ₈	1.19	1 ¹ / ₁₆	1 ³ / ₁₆	↓	↓
x 194	57.2	28.1	28 ¹ / ₈	0.750	3 ⁴ / ₁₆	14.0	14	1.34	1 ⁵ / ₁₆	1 ³ / ₁₆	↓	↓
x 217	64.0	28.4	28 ³ / ₈	0.830	1 ³ / ₁₆	14.1	14 ¹ / ₈	1.50	1 ¹ / ₂	1 ¹ / ₄	↓	↓
x 235	69.4	28.7	28 ⁵ / ₈	0.910	1 ⁹ / ₁₆	14.2	14 ¹ / ₄	1.61	1 ⁹ / ₁₆	1 ⁵ / ₁₆	↓	↓
x 258	76.0	29.0	29	0.980	1 ¹ / ₂	14.3	14 ¹ / ₄	1.77	1 ³ / ₄	1 ⁵ / ₁₆	↓	↓
x 281	82.9	29.3	29 ¹ / ₄	1.060	1 ¹ / ₁₆	14.4	14 ³ / ₈	1.93	1 ¹⁵ / ₁₆	1 ³ / ₈	↓	↓
x 307	90.4	29.6	29 ⁵ / ₈	1.160	1 ³ / ₁₆	14.4	14 ¹ / ₂	2.09	2 ¹ / ₁₆	1 ⁷ / ₁₆	↓	↓
x 336	98.9	30.0	30	1.260	1 ¹ / ₄	14.6	14 ¹ / ₂	2.28	2 ¹ / ₄	1 ⁷ / ₁₆	↓	↓
x 368	108.0	30.4	30 ³ / ₈	1.380	1 ³ / ₈	14.7	14 ⁵ / ₈	2.48	2 ¹ / ₂	1 ¹ / ₂	↓	↓
x 539	159	32.5	32 ¹ / ₂	1.970	2	15.3	15 ¹ / ₄	3.54	3 ⁹ / ₁₆	1 ¹³ / ₁₆	↓	↓
W 30 x 90	26.4	29.5	29 ¹ / ₂	0.470	1 ¹ / ₂	10.4	10 ³ / ₈	0.610	5 ⁸ / ₁₆	1 ¹ / ₁₆	26 ¹ / ₂	5 ¹ / ₂
x 99	29.1	29.7	29 ⁵ / ₈	0.520	1 ¹ / ₂	10.5	10 ¹ / ₂	0.670	1 ¹ / ₁₆	1 ¹ / ₁₆	↓	↓
x 108	31.7	29.8	29 ⁷ / ₈	0.545	9 ¹ / ₁₆	10.5	10 ¹ / ₂	0.760	3 ⁴ / ₁₆	1 ¹ / ₈	↓	↓
x 116	34.2	30.0	30	0.565	9 ¹ / ₁₆	10.5	10 ¹ / ₂	0.850	7 ⁸ / ₁₆	1 ¹ / ₈	↓	↓
x 124	36.5	30.2	30 ¹ / ₈	0.585	9 ¹ / ₁₆	10.5	10 ¹ / ₂	0.930	1 ⁵ / ₁₆	1 ¹ / ₈	↓	↓
x 132	38.9	30.3	30 ¹ / ₄	0.615	5 ⁸ / ₁₆	10.5	10 ¹ / ₂	1.00	1	1 ¹ / ₈	↓	↓
x 148	43.5	30.7	30 ⁵ / ₈	0.650	5 ⁸ / ₁₆	10.5	10 ¹ / ₂	1.18	1 ¹ / ₁₆	1 ¹ / ₈	↓	↓
W 30 x 173	51.0	30.4	30 ¹ / ₂	0.655	5 ⁸ / ₁₆	15.0	15	1.07	1 ¹ / ₁₆	1 ¹ / ₈	26 ¹ / ₂	5 ¹ / ₂
x 191	56.3	30.7	30 ⁵ / ₈	0.710	1 ¹ / ₁₆	15.0	15	1.19	1 ¹ / ₁₆	1 ³ / ₁₆	↓	↓
x 211	62.2	30.9	31	0.775	3 ⁴ / ₁₆	15.1	15 ¹ / ₈	1.32	1 ⁵ / ₁₆	1 ³ / ₁₆	↓	↓
x 235	69.2	31.3	31 ¹ / ₄	0.830	1 ³ / ₁₆	15.1	15	1.50	1 ¹ / ₂	1 ¹ / ₄	↓	↓
x 261	76.9	31.6	31 ⁵ / ₈	0.930	1 ⁹ / ₁₆	15.2	15 ¹ / ₈	1.65	1 ⁹ / ₁₆	1 ⁵ / ₁₆	↓	↓
x 292	85.9	32.0	32	1.02	1	15.3	15 ¹ / ₄	1.85	1 ⁷ / ₈	1 ⁵ / ₁₆	↓	↓
x 326	95.8	32.4	32 ³ / ₈	1.14	1 ¹ / ₈	15.4	15 ³ / ₈	2.05	2 ¹ / ₁₆	1 ³ / ₈	↓	↓
x 357	105.0	32.8	32 ³ / ₄	1.24	1 ¹ / ₄	15.5	15 ¹ / ₂	2.24	2 ¹ / ₄	1 ⁷ / ₁₆	↓	↓
x 391	115.0	33.2	32 ¹ / ₄	1.36	1 ³ / ₈	15.6	15 ⁵ / ₈	2.44	2 ⁷ / ₁₆	1 ¹ / ₂	↓	↓

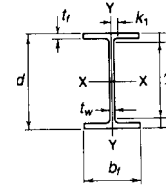


W Shapes Dimensions

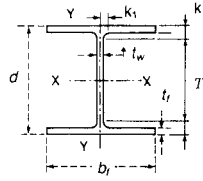
Shapes	Area A	Depth d		Web		Flange				Distance		
				Thickness t _w		Width b _f		Thickness t _f		k ₁	T	Work- able Gage
				in.		in.		in.		in.	in.	in.
W 33 x 118	34.7	32.9	32 ⁷ / ₈	0.550	9 ¹ / ₁₆	11.5	11 ¹ / ₂	0.740	3 ³ / ₄	1 ¹ / ₈	29 ⁵ / ₈	5 ¹ / ₂
x 130	38.3	33.1	33 ¹ / ₈	0.580	9 ¹ / ₁₆	11.5	11 ¹ / ₂	0.855	7 ⁷ / ₈	1 ¹ / ₈	↓	↓
x 141	41.6	33.3	33 ¹ / ₄	0.605	5 ⁵ / ₈	11.5	11 ¹ / ₂	0.960	1 ⁵ / ₁₆	1 ¹ / ₈	↓	↓
x 152	44.8	33.5	33 ¹ / ₂	0.635	5 ⁵ / ₈	11.6	11 ⁵ / ₈	1.06	1 ¹ / ₁₆	1 ¹ / ₈	↓	↓
x 169	49.5	33.8	33 ³ / ₈	0.670	1 ¹ / ₁₆	11.5	11 ¹ / ₂	1.22	1 ¹ / ₄	1 ³ / ₁₆	↓	↓
W 33 x 201	59.2	33.7	33 ⁵ / ₈	0.715	1 ¹ / ₁₆	15.7	15 ³ / ₄	1.15	1 ¹ / ₈	1 ³ / ₁₆	29 ⁵ / ₈	5 ¹ / ₂
x 221	65.2	33.9	33 ⁷ / ₈	0.775	3 ³ / ₄	15.8	15 ³ / ₄	1.28	1 ¹ / ₄	1 ³ / ₁₆	↓	↓
x 241	71.0	34.2	34 ¹ / ₈	0.830	1 ³ / ₁₆	15.9	15 ⁷ / ₈	1.40	1 ³ / ₈	1 ¹ / ₄	↓	↓
x 263	77.5	34.5	34 ¹ / ₂	0.870	7 ⁷ / ₈	15.8	15 ³ / ₄	1.57	1 ¹ / ₁₆	1 ¹ / ₄	↓	↓
x 291	85.7	34.8	34 ⁷ / ₈	0.960	1 ⁵ / ₁₆	15.9	15 ⁷ / ₈	1.73	1 ³ / ₄	1 ⁵ / ₁₆	↓	↓
x 318	93.6	35.2	35 ¹ / ₈	1.04	1 ¹ / ₁₆	16.0	16	1.89	1 ⁷ / ₈	1 ⁵ / ₁₆	↓	↓
x 354	104.0	35.6	35 ¹ / ₂	1.16	1 ³ / ₁₆	16.1	16 ¹ / ₈	2.09	2 ¹ / ₁₆	1 ³ / ₈	↓	↓
x 387	114.0	36.0	36	1.26	1 ¹ / ₄	16.2	16 ¹ / ₄	2.28	2 ¹ / ₄	1 ⁷ / ₁₆	↓	↓
W 36 x 135	39.7	35.6	35 ¹ / ₂	0.600	5 ⁵ / ₈	12.0	12	0.790	1 ³ / ₁₆	1 ¹ / ₈	32 ¹ / ₈	5 ¹ / ₂
x 150	44.2	35.9	35 ⁷ / ₈	0.625	5 ⁵ / ₈	12.0	12	0.940	1 ⁵ / ₁₆	1 ¹ / ₈	↓	↓
x 160	47.0	36.0	36	0.650	5 ⁵ / ₈	12.0	12	1.02	1	1 ¹ / ₈	↓	↓
x 170	50.1	36.2	36 ¹ / ₈	0.680	1 ¹ / ₁₆	12.0	12	1.10	1 ¹ / ₈	1 ³ / ₁₆	↓	↓
x 182	53.6	36.3	36 ³ / ₈	0.725	3 ³ / ₄	12.1	12 ¹ / ₈	1.18	1 ³ / ₁₆	1 ³ / ₁₆	↓	↓
x 194	57.0	36.5	36 ¹ / ₂	0.765	3 ³ / ₄	12.1	12 ¹ / ₈	1.26	1 ¹ / ₄	1 ³ / ₁₆	↓	↓
x 210	61.8	36.7	36 ³ / ₄	0.830	1 ³ / ₁₆	12.2	12 ¹ / ₈	1.36	1 ³ / ₈	1 ¹ / ₄	↓	↓
x 232	68.1	37.1	37 ¹ / ₈	0.870	7 ⁷ / ₈	12.1	12 ¹ / ₈	1.57	1 ¹ / ₁₆	1 ¹ / ₄	↓	↓
x 256	75.4	37.4	37 ³ / ₈	0.960	1 ⁵ / ₁₆	12.2	12 ¹ / ₄	1.73	1 ³ / ₄	1 ⁵ / ₁₆	↓	↓
W 36 x 231	68.1	36.5	36 ¹ / ₂	0.760	3 ³ / ₄	16.5	16 ¹ / ₂	1.26	1 ¹ / ₄	1 ¹ / ₈	31 ¹ / ₈	7 ¹ / ₂
x 247	72.5	36.7	36 ⁵ / ₈	0.800	1 ³ / ₁₆	16.5	16 ¹ / ₂	1.35	1 ³ / ₈	1 ⁵ / ₈	↓	↓
x 262	77.0	36.9	36 ⁷ / ₈	0.840	1 ³ / ₁₆	16.6	16 ¹ / ₂	1.44	1 ⁷ / ₁₆	1 ⁵ / ₈	↓	↓
x 282	82.9	37.1	37 ¹ / ₈	0.885	7 ⁷ / ₈	16.6	16 ⁵ / ₈	1.57	1 ¹ / ₁₆	1 ⁵ / ₈	↓	↓
x 302	88.8	37.3	37 ³ / ₈	0.945	1 ⁵ / ₁₆	16.7	16 ⁵ / ₈	1.68	1 ¹¹ / ₁₆	1 ¹¹ / ₁₆	↓	↓
x 330	97.0	37.7	37 ⁵ / ₈	1.02	1	16.6	16 ⁵ / ₈	1.85	1 ⁷ / ₈	1 ³ / ₄	↓	↓
x 361	106.0	38.0	38	1.12	1 ¹ / ₈	16.7	16 ³ / ₄	2.01	2	1 ³ / ₄	↓	↓
x 395	116.0	38.4	38 ³ / ₈	1.22	1 ¹ / ₄	16.8	16 ⁷ / ₈	2.20	2 ³ / ₁₆	1 ¹³ / ₁₆	↓	↓
x 441	130.0	38.9	38 ⁷ / ₈	1.36	1 ³ / ₈	17.0	17	2.44	2 ⁷ / ₁₆	1 ⁷ / ₈	↓	↓
x 487	143.0	39.3	39 ³ / ₈	1.50	1 ¹ / ₂	17.1	17 ¹ / ₈	2.68	2 ¹¹ / ₁₆	1 ¹⁵ / ₁₆	↓	↓
x 529	156.0	39.8	39 ³ / ₄	1.61	1 ⁵ / ₈	17.2	17 ¹ / ₄	2.91	2 ¹⁵ / ₁₆	2	↓	↓
x 652	192.0	41.1	41	1.97	2	17.6	17 ⁵ / ₈	3.54	3 ³ / ₁₆	2 ³ / ₁₆	↓	↓
x 800	236.0	42.6	42 ¹ / ₂	2.38	2 ³ / ₈	18.0	18	4.29	4 ⁵ / ₁₆	2 ³ / ₈	↓	↓

W Shapes

Dimensions



Shapes	Area A	Depth d		Web		Flange				Distance		
				Thickness t _w		Width b _f		Thickness t _f		k ₁	T	Work- able Gage
				in.		in.		in.		in.	in.	in.
W 40 x 149	43.8	38.2	38¼	0.630	5/8	11.8	11¾	0.830	13/16	1½	34	7½
x 167	49.2	38.6	38¾	0.650	5/8	11.8	11¾	1.03	1	19/16	↓	↓
x 183	53.3	39.0	39	0.650	5/8	11.8	11¾	1.20	13/16	19/16	↓	↓
x 211	62.0	39.4	39¾	0.750	¾	11.8	11¾	1.42	17/16	19/16	↓	↓
x 235	69.0	39.7	39¾	0.830	13/16	11.9	117/8	1.58	19/16	19/8	↓	↓
x 264	77.6	40.0	40	0.960	15/16	11.9	117/8	1.73	1¾	111/16	↓	↓
x 278	82.0	40.2	40½	1.03	1	12.0	12	1.81	113/16	1¾	↓	↓
x 294	86.3	40.4	40¾	1.06	11/16	12.0	12	1.93	115/16	1¾	↓	↓
x 327	96.0	40.8	40¾	1.18	13/16	12.1	12½	2.13	2½	113/16	↓	↓
x 331	97.5	40.8	40¾	1.22	1¼	12.2	12½	2.13	2½	113/16	↓	↓
x 392	115.0	41.6	415/8	1.42	17/16	12.4	12¾	2.52	2½	115/16	↓	↓
W 40 x 199	58.5	38.7	385/8	0.650	5/8	15.8	15¾	1.07	11/16	19/16	34	7½
x 215	63.4	39.0	39	0.650	5/8	15.8	15¾	1.22	1¼	19/16	↓	↓
x 249	73.3	39.4	39¾	0.750	¾	15.8	15¾	1.42	17/16	19/16	↓	↓
x 277	81.4	39.7	39¾	0.830	13/16	15.8	157/8	1.58	19/16	19/8	↓	↓
x 297	87.4	39.8	397/8	0.930	15/16	15.8	157/8	1.65	15/8	111/16	↓	↓
x 324	95.3	40.2	40½	1.00	1	15.9	157/8	1.81	113/16	111/16	↓	↓
x 362	107.0	40.6	40½	1.12	1½	16.0	16	2.01	2	1¾	↓	↓
x 372	109.0	40.6	405/8	1.16	13/16	16.1	16½	2.05	21/16	113/16	↓	↓
x 397	117.0	41.0	41	1.22	1¼	16.1	16½	2.20	23/16	113/16	↓	↓
x 431	127.0	41.3	41¼	1.34	15/16	16.2	16¼	2.36	23/8	17/8	↓	↓
x 503	148.0	42.1	42	1.54	19/16	16.4	163/8	2.76	2¾	2	↓	↓
x 593	174.0	43.0	43	1.79	113/16	16.7	16¾	3.23	3¼	2½	↓	↓
W 44 x 230	67.7	42.9	427/8	0.710	11/16	15.8	15¾	1.22	1¼	19/16	38¾	5½
x 262	76.9	43.3	43¼	0.785	13/16	15.8	1¾	1.42	17/16	19/16	↓	↓
x 290	85.4	43.6	435/8	0.865	7/8	15.8	157/8	1.58	19/16	1¼	↓	↓
x 335	98.5	44.0	44	1.03	1	15.9	16	1.77	1¾	19/16	↓	↓



HP Shapes Dimensions

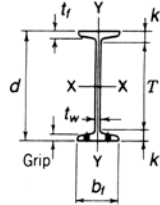
Designation	Area A	Depth d		Web			Flange				Distance		
				Thickness t _w		t _w 2	Width b _f		Thickness t _f		T	k	k ₁
				in.			in.		in.		in.	in.	
HP 8 x 36	10.6	8.02	8	0.805	7/16	1/4	8.155	8 1/8	0.445	7/16	6 1/8	1 5/16	5/8
HP 10 x 42	12.4	9.70	9 3/4	0.415	7/16	1/4	10.075	10 1/8	0.420	7/16	7 5/8	1 1/4	3/4
x 57	16.8	9.99	10	0.565	9/16	5/16	10.225	10 1/4	0.565	9/16	7 5/8	1 3/16	13/16
HP 12 x 53	15.5	11.78	11 3/4	0.435	7/16	1/4	12.045	12	0.435	7/16	9 1/2	1 1/8	7/8
x 63	18.4	11.94	12	0.515	1/2	1/4	12.125	12 1/8	0.515	1/2	9 1/2	1 1/4	7/8
x 74	21.8	12.13	12 1/8	0.605	5/8	3/16	12.215	12 1/4	0.610	5/8	9 1/2	1 5/16	15/16
x 84	24.6	12.28	12 1/4	0.685	1 1/16	3/8	12.295	12 1/4	0.685	1 1/16	9 1/2	1 3/8	1
HP 14 x 73	21.4	13.61	13 5/8	0.505	1/2	1/4	14.585	14 5/8	0.505	1/2	11 1/4	1 3/16	7/8
x 89	26.1	13.83	13 7/8	0.615	5/8	5/16	14.695	14 3/4	0.615	5/8	11 1/4	1 5/16	15/16
x 102	30.0	14.01	14	0.705	1 1/16	3/8	14.785	14 3/4	0.705	1 1/16	11 1/4	1 3/8	1
x 117	34.4	14.21	14 1/4	0.805	1 3/16	7/16	14.885	14 7/8	0.805	1 3/16	11 1/4	1 1/2	1 1/16

I-Beam
TAB (front)

**I-Beams
“S” Shapes
4” to 24”**

**I-Beam
TAB (back)**

**S Shapes
Dimensions**



Shapes	Area A	Depth d		Web			Flange				Distance		Grip	Max. Fige. Fas- ten- er
				Thickness t _w	t _w 2	Width b _f	Thickness t _f	T	k					
										in.	in.	in.		
S 3 x 5.7 x 7.5	1.67	3.00	3	0.170	3/16	1/8	2.330	2 3/8	0.260	1/4	1 5/8	1 1/16	1/4	—
	2.21	3.00	3	0.349	3/8	3/16	2.509	2 1/2	0.260	1/4	1 5/8	1 1/16	1/4	—
S 4 x 7.7 x 9.5	2.26	4.00	4	0.193	3/16	1/8	2.663	2 5/8	0.293	5/16	2 1/2	3/4	5/16	—
	2.79	4.00	4	0.326	5/16	3/16	2.796	2 3/4	0.293	5/16	2 1/2	3/4	5/16	—
S 5 x 10 x 14.75	2.94	5.00	5	0.214	3/16	1/8	3.004	3	0.326	5/16	3 3/8	13/16	5/16	—
	4.34	5.00	5	0.494	1/2	1/4	3.284	3 1/4	0.326	5/16	3 3/8	13/16	5/16	—
S 6 x 12.5 x 17.25	3.67	6.00	6	0.232	1/4	1/8	3.332	3 3/8	0.359	3/8	4 1/4	7/8	3/8	—
	5.07	6.00	6	0.465	7/16	1/4	3.565	3 5/8	0.359	3/8	4 1/4	7/8	3/8	5/8
S 7 x 17.25 x 20	5.07	6.00	6	0.465	7/16	1/4	3.565	3 5/8	0.359	3/8	4 1/4	7/8	3/8	5/8
	5.88	7.00	7	0.450	7/16	1/4	3.860	3 7/8	0.392	3/8	5 1/8	1 5/16	3/8	5/8
S 8 x 18.4 x 23	5.41	8.00	8	0.271	1/4	1/8	4.001	4	0.426	7/16	6	1	7/16	3/4
	6.77	8.00	8	0.441	7/16	1/4	4.171	4 1/8	0.426	7/16	6	1	7/16	3/4
S 10 x 25.4 x 35	7.46	10.00	10	0.311	5/16	3/16	4.661	4 5/8	0.491	1/2	7 3/4	1 1/8	1/2	3/4
	10.3	10.00	10	0.594	5/8	5/16	4.944	5	0.491	1/2	7 3/4	1 1/8	1/2	3/4
S 12 x 31.8 x 35	9.35	12.00	12	0.350	3/8	3/16	5.000	5	0.544	9/16	9 5/8	1 3/16	1/2	3/4
	10.3	12.00	12	0.428	7/16	1/4	5.078	5 1/8	0.544	9/16	9 5/8	1 3/16	1/2	3/4
S 12 x 40.8 x 50	12.0	12.00	12	0.462	7/16	1/4	5.252	5 1/4	0.659	1 1/16	9 1/8	1 7/16	5/8	3/4
	14.7	12.00	12	0.687	1 1/16	3/8	5.477	5 1/2	0.659	1 1/16	9 1/8	1 7/16	1 1/16	3/4
S 15 x 42.9 x 50	12.6	15.00	15	0.411	7/16	1/4	5.501	5 1/2	0.622	5/8	12 1/4	1 3/8	9/16	3/4
	14.7	15.00	15	0.550	9/16	5/16	5.640	5 5/8	0.622	5/8	12 1/4	1 3/8	9/16	3/4
S 18 x 54.7 x 70	16.1	18.00	18	0.461	7/16	1/4	6.001	6	0.691	1 1/16	15	1 1/2	1 1/16	7/8
	20.6	18.00	18	0.711	1 1/16	3/8	6.251	6 1/4	0.691	1 1/16	15	1 1/2	1 1/16	7/8
S 20 x 66 x 75	19.4	20.00	20	0.505	1/2	1/4	6.255	6 1/4	0.795	1 3/16	16 3/4	1 5/8	1 3/16	7/8
	22.0	20.00	20	0.635	5/8	5/16	6.385	6 3/8	0.795	1 3/16	16 3/4	1 5/8	1 3/16	7/8
S 20 x 86 x 96	25.3	20.30	20 1/4	0.660	1 1/16	3/8	7.060	7	0.920	1 5/16	16 3/4	1 3/4	1 5/16	1
	28.2	20.30	20 1/4	0.800	1 3/16	7/16	7.200	7 1/4	0.920	1 5/16	16 3/4	1 3/4	1 5/16	1
S 24 x 80 x 90 x 100	23.5	24.00	24	0.500	1/2	1/4	7.000	7	0.870	7/8	20 1/2	1 3/4	7/8	1
	26.5	24.00	24	0.625	5/8	5/16	7.125	7 1/8	0.870	7/8	20 1/2	1 3/4	7/8	1
	29.3	24.00	24	0.745	3/4	3/8	7.245	7 1/4	0.870	7/8	20 1/2	1 3/4	7/8	1
S 24 x 106 x 121	31.2	24.50	24 1/2	0.620	5/8	5/16	7.870	7 7/8	1.090	1 1/16	20 1/2	2	1 1/8	1
	35.6	24.50	24 1/2	0.800	1 3/16	7/16	8.050	8	1.090	1 1/16	20 1/2	2	1 1/8	1

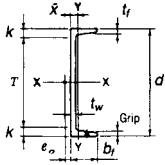
Standard Channel
TAB (front)

Standard Channel

3" to 15"

**Standard Channel
TAB (back)**

**Standard
Channels**
Dimensions

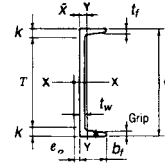


Shapes	Area A	Depth d	Web			Flange			Distance		Grip	Max. Flg. Fas- ten- er	
			Thickness t _w	t _w 2	Width b _f	Thickness t _f	T	k					
									in.	in.			in.
C 3 x 4.1	1.21	3.0	0.170	3/16	1/16	1.410	1 3/8	0.273	1/4	1 5/8	1 1/16	—	—
x 5	1.47	3.0	0.258	1/4	1/8	1.498	1 1/2	0.273	1/4	1 5/8	1 1/16	—	—
x 6	1.76	3.0	0.356	3/8	3/16	1.596	1 5/8	0.273	1/4	1 5/8	1 1/16	—	—
C 4 x 5.4	1.59	4.0	0.184	3/16	1/16	1.584	1 5/8	0.296	5/16	2 5/8	1 1/16	5/16	5/8
x 7.25	2.13	4.0	0.321	5/16	3/16	1.721	1 3/4	0.296	5/16	2 5/8	1 1/16	—	—
C 5 x 6.7	1.97	5.0	0.190	3/16	1/8	1.750	1 3/4	0.320	5/16	3 1/2	3/4	5/16	5/8
x 9	2.64	5.0	0.325	5/16	3/16	1.885	1 7/8	0.320	5/16	3 1/2	3/4	—	—
C 6 x 8.2	2.40	6.0	0.200	3/16	1/8	1.920	1 7/8	0.343	5/16	4 3/8	1 3/16	5/16	5/8
x 10.5	3.09	6.0	0.314	5/16	3/16	2.034	2	0.343	5/16	4 3/8	1 3/16	3/8	5/8
x 13	3.83	6.0	0.437	7/16	3/16	2.157	2 1/8	0.343	5/16	4 3/8	1 3/16	5/16	5/8
C 7 x 9.8	2.87	7.0	0.210	3/16	1/8	2.090	2 1/8	0.366	3/8	5 1/4	7/8	3/8	5/8
x 12.25	3.60	7.0	0.314	5/16	3/16	2.194	2 1/4	0.366	3/8	5 1/4	7/8	3/8	5/8
x 14.75	4.33	7.0	0.419	7/16	3/16	2.299	2 1/4	0.336	3/8	5 1/4	7/8	3/8	5/8
C 8 x 11.5	3.38	8.0	0.220	1/4	1/8	2.260	2 1/4	0.390	3/8	6 1/8	1 5/16	3/8	3/4
x 13.75	4.04	8.0	0.303	5/16	1/8	2.343	2 3/8	0.390	3/8	6 1/8	1 5/16	3/8	3/4
x 18.75	5.51	8.0	0.487	1/2	1/4	2.527	2 1/2	0.390	3/8	6 1/8	1 5/16	3/8	3/4
C 9 x 13.4	3.94	9.0	0.233	1/4	1/8	2.433	2 3/8	0.413	7/16	7 1/8	1 5/16	7/16	3/4
x 15	4.41	9.0	0.285	5/16	1/8	2.485	2 1/2	0.413	7/16	7 1/8	1 5/16	7/16	3/4
x 20	5.88	9.0	0.448	7/16	1/4	2.648	2 5/8	0.413	7/16	7 1/8	1 5/16	7/16	3/4
C 10 x 15.3	4.49	10.0	0.240	1/4	1/8	2.600	2 5/8	0.436	7/16	8	1	7/16	3/4
x 20	5.88	10.0	0.379	3/8	3/16	2.739	2 3/4	0.436	7/16	8	1	7/16	3/4
x 25	7.35	10.0	0.526	1/2	1/4	2.886	2 7/8	0.436	7/16	8	1	7/16	3/4
x 30	8.82	10.0	0.673	1 1/16	5/16	3.033	3	0.436	7/16	8	1	7/16	3/4
C 12 x 20.7	6.09	12.0	0.282	5/16	1/8	2.942	3	0.501	1/2	9 3/4	1 1/8	1/2	7/8
x 25	7.35	12.0	0.387	3/8	3/16	3.047	3	0.501	1/2	9 3/4	1 1/8	1/2	7/8
x 30	8.82	12.0	0.510	1/2	1/4	3.170	3 1/8	0.501	1/2	9 3/4	1 1/8	1/2	7/8
C 15 x 33.9	9.96	15.0	0.400	3/8	3/16	3.400	3 3/8	0.650	5/8	12 1/8	1 7/16	5/8	1
x 40	11.8	15.0	0.520	1/2	1/4	3.520	3 1/2	0.650	5/8	12 1/8	1 7/16	5/8	1
x 50	14.7	15.0	0.716	1 1/16	3/8	3.716	3 3/4	0.650	5/8	12 1/8	1 7/16	5/8	1

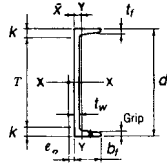
Misc. Channel
TAB (front)

**Miscellaneous Channels
&
M Shapes
3" to 18"**

Channels Miscellaneous Dimensions



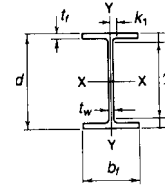
Shapes	Area A	Depth d	Web			Flange				Distance		Grip	Max. Flge. Fas- ten- er
			Thickness t _w	t _w 2	Width b _f	Thickness t _f	T	k	in.	in.			
	in. ²	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
MC 3 x 7.1	2.09	3.00	0.310	5/16	1/8	1.940	1 7/8	0.350	3/8				
MC 4 x 13.8	4.02	4.00	0.500	1/2	1/4	2.500	2 1/2	0.500	1/4				
MC 6 x 12	3.53	6.00	0.310	5/16	1/8	2.497	2 1/2	0.375	3/8	4 3/8	1 3/16	3/8	5/8
MC 6 x 15.1 x 16.3	4.44	6.00	0.316	5/16	3/16	2.941	3	0.475	1/2	3 7/8	1 1/16	1/2	3/4
	4.79	6.00	0.375	3/8	3/16	3.000	3	0.475	1/2	3 7/8	1 1/16	1/2	3/4
MC 6 x 15.3 x 18	4.50	6.00	0.340	5/16	3/16	3.500	3 1/2	0.385	3/8	4 1/4	7/8	3/8	7/8
	5.29	6.00	0.379	3/8	3/16	3.504	3 1/2	0.475	1/2	3 7/8	1 1/16	1/2	7/8
MC 7 x 19.1 x 22.7	5.61	7.00	0.352	3/8	3/16	3.452	3 1/2	0.500	1/2	4 3/4	1 1/8	1/2	7/8
	6.67	7.00	0.503	1/2	1/4	3.603	3 5/8	0.500	1/2	4 3/4	1 1/8	1/2	7/8
MC 8 x 8.5	2.50	8.00	0.179	3/16	1/16	1.874	1 7/8	0.311	5/16	6 1/2	3/4	5/16	5/8
MC 8 x 1 8.7 x 20	5.50	8.00	0.353	3/8	3/16	2.978	3	0.500	1/2	5 3/4	1 1/8	1/2	7/8
	5.88	8.00	0.400	3/8	3/16	3.025	3	0.500	1/2	5 3/4	1 1/8	1/2	7/8
MC 8 x 21.4 x 22.8	6.28	8.00	0.375	3/8	3/16	3.450	3 1/2	0.525	1/2	5 5/8	1 3/16	1/2	7/8
	6.70	8.00	0.427	7/16	3/16	3.502	3 1/2	0.525	1/2	5 5/8	1 3/16	1/2	7/8
MC 9 x 23.9 x 25.4	7.02	9.00	0.400	3/8	3/16	3.450	3 1/2	0.550	9/16	6 5/8	1 3/16	9/16	7/8
	7.47	9.00	0.450	7/16	1/4	3.500	3 1/2	0.550	9/16	6 5/8	1 3/16	9/16	7/8
MC 10 x 6.5	1.91	10.00	0.152	1/8	1/16	1.127	1 1/8	0.202	3/16	9 1/8	7/16	—	—
MC 10 x 8.4	2.46	10.00	0.170	3/16	1/16	1.500	1 1/2	0.280	1/4	8 5/8	1 1/16	—	—
MC 10 x 22 x 25	6.45	10.00	0.290	5/16	1/8	3.315	3 3/8	0.575	9/16	7 1/2	1 1/4	9/16	7/8
	7.35	10.00	0.380	3/8	3/16	3.405	3 3/8	0.575	9/16	7 1/2	1 1/4	9/16	7/8
MC 10 x 2 8.5 x 33.6 x 41.1	8.47	10.00	0.425	7/16	3/16	3.950	4	0.575	9/16	7 1/2	1 1/4	9/16	7/8
	9.87	10.00	0.575	9/16	5/16	4.100	4 1/8	0.575	9/16	7 1/2	1 1/4	9/16	7/8
	12.1	10.00	0.796	1 3/16	3/8	4.321	4 3/8	0.575	9/16	7 1/2	1 1/4	9/16	7/8
MC 12 x 10.6	3.1	12.00	0.190	3/16	1/8	1.500	1 1/2	0.309	5/16	10 5/8	1 1/16	—	—



Channels Miscellaneous Dimensions

Shapes	Area A	Depth d	Web		Flange				Distance		Grip	Max. Fige. Fas- ten- er	
			Thickness t _w	t _w 2	Width b _f	Thickness t _f	T	k					
									in. ²	in.			in.
MC 12 x 31	9.12	12.00	0.370	3/8	3/16	3.670	3 5/8	.0700	1 1/16	9 3/8	1 5/16	1 1/16	1
x 35	10.3	12.00	0.467	7/16	1/4	3.767	3 3/4	.0700	1 1/16	9 3/8	1 5/16	1 1/16	1
x 40	11.8	12.00	0.590	9/16	5/16	3.890	3 7/8	.0700	1 1/16	9 3/8	1 5/16	1 1/16	1
x 45	13.2	12.00	0.712	1 1/16	3/8	4.012	4	.0700	1 1/16	9 3/8	1 5/16	1 1/16	1
x 50	14.7	12.00	0.835	1 3/16	7/16	4.135	4 1/8	.0700	1 1/16	9 3/8	1 5/16	1 1/16	1
MC 13 x 31.8	9.35	13.00	0.375	3/8	3/16	4.000	4	0.610	5/8	10 1/4	1 3/8	9/16	1
x 35	10.3	13.00	0.447	7/16	1/4	4.072	4 1/8	0.610	5/8	10 1/4	1 3/8	9/16	1
x 40	11.8	13.00	0.560	9/16	1/4	4.185	4 1/8	0.610	5/8	10 1/4	1 3/8	9/16	1
x 50	14.7	13.00	0.787	1 3/16	3/8	4.412	4 3/8	0.610	5/8	10 1/4	1 3/8	5/8	1
MC 18 x 42.7	12.6	18.00	0.450	7/16	1/4	3.950	4	0.625	5/8	15 1/4	1 3/8	5/8	1
x 45.8	13.5	18.00	0.500	1/2	1/4	4.000	4	0.625	5/8	15 1/4	1 3/8	5/8	1
x 51.9	15.3	18.00	0.600	5/8	5/16	4.100	4 1/8	0.625	5/8	15 1/4	1 3/8	5/8	1
x 58	17.1	18.00	0.800	1 1/16	3/8	4.200	4 1/4	0.625	5/8	15 1/4	1 3/8	5/8	1

M Shapes Dimensions



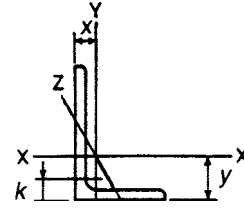
Shapes	Area A	Depth d	Web		Flange		Distance		Grip	Max. Flge. Fas- ten- er			
			Thickness t _w	t _w / 2	Width b _f	Thickness t _f	T	k					
	in. ²	in.	in.	in.	in.	in.	in.	in.	in.	in.			
M 5 x 18.9	5.55	5.00	5	0.316	5/16	3/16	5.003	5	0.416	7/16	3 1/4	7/16	7/8
M 6 x 4.4	1.29	6.00	6	0.114	1/8	1/16	1.844	1 7/8	0.171	3/16	5 1/8	3/16	—
M 8 x 6.5	1.92	8.00	8	0.135	1/8	1/16	2.281	2 1/4	0.189	3/16	7	3/16	—
M 10 x 7.5	2.21	9.99	10	0.130	1/8	1/16	2.690	2 3/4	0.173	3/16	9 1/8	3/16	3/8
x 8	2.35	9.95	10	0.141	3/16	1/16	2.690	2 3/4	0.182	3/16	9 1/8	3/16	3/8
x 9	2.65	10.00	10	0.157	3/16	1/8	2.690	2 3/4	0.206	3/16	8 7/8	3/16	—
M 12 x 10	2.94	11.97	12	0.149	3/16	1/16	3.250	3 1/4	0.180	3/16	11	3/16	1/2
x 10.8	3.18	11.97	12	0.160	3/16	1/16	3.065	3 1/8	0.210	1/4	11	1/4	1/2
x 11.8	3.47	12.00	12	0.177	3/16	1/8	3.065	3 1/8	0.225	1/4	10 7/8	1/4	—
M 14 x 18	5.10	14.00	14	0.215	3/16	1/8	4.000	4	0.270	1/4	12 3/4	1/4	3/4

ANGLE
TAB (front)

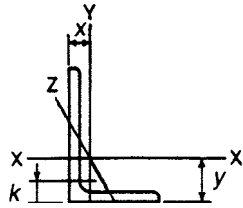
Structural and Bar Angle Equal and Unequal Legs

**ANGLE
TAB (back)**

Angles
Equal legs
Properties for designing



Size and Thickness	k	Weight per ft.	Area	Axis X-X				Axis Y-Y				Axis Z-Z	
				<i>I</i>	<i>S</i>	<i>r</i>	<i>y</i>	<i>I</i>	<i>S</i>	<i>r</i>	<i>x</i>	<i>r</i>	Tan
in.	in.	lb.	in. ²	in. ⁴	in. ³	in.	in.	in. ⁴	in. ³	in.	in.	in.	
L 1 x 1 x 1/8	1/4	0.800	0.234	0.022	0.031	0.304	0.296	0.022	0.031	0.304	0.296	0.196	1.000
L 1 1/8 x 1 1/8 x 1/8	7/32	0.900	0.266	0.032	0.040	0.345	0.327	0.032	0.040	0.345	0.327	0.221	1.000
L 1 1/4 x 1 1/4 x 3/16 x 1/4	3/8	1.48	0.434	0.061	0.071	0.377	0.381	0.061	0.071	0.377	0.381	0.244	1.000
	7/16	1.92	0.563	0.077	0.091	0.369	0.403	0.077	0.091	0.369	0.403	0.243	1.000
L 1 1/2 x 1 1/2 x 3/16 x 1/4	3/8	1.80	0.527	0.110	0.104	0.457	0.444	0.110	0.104	0.457	0.444	0.293	1.000
	7/16	2.34	0.688	0.139	0.134	0.449	0.466	0.139	0.134	0.449	0.466	0.292	1.000
L 1 3/4 x 1 3/4 x 3/16 x 1/4	7/16	2.12	0.621	0.179	0.144	0.537	0.506	0.179	0.144	0.537	0.506	0.343	1.000
	1/2	2.77	0.813	0.227	0.227	0.529	0.529	0.227	0.227	0.529	0.529	0.341	1.000
L 2 x 2 x 1/8 x 3/16 x 1/4 x 5/16 x 3/8	3/8	1.65	0.484	0.190	0.131	0.626	0.546	0.190	0.131	0.626	0.546	0.398	1.000
	7/16	2.44	0.715	0.272	0.190	0.617	0.569	0.272	0.190	0.617	0.569	0.394	1.000
	1/2	3.19	0.938	0.348	0.247	0.609	0.592	0.348	0.247	0.609	0.592	0.391	1.000
	9/16	3.92	1.15	0.416	0.300	0.601	0.614	0.416	0.300	0.601	0.614	0.390	1.000
	5/8	4.7	1.36	0.479	0.351	0.594	0.636	0.479	0.351	0.594	0.636	0.389	1.000
L 2 1/2 x 2 1/2 x 3/16 x 1/4 x 5/16 x 3/8 x 1/2	1/2	3.07	0.902	0.547	0.303	0.778	0.694	0.547	0.303	0.778	0.694	0.495	1.000
	9/16	4.1	1.19	0.709	0.394	0.769	0.717	0.703	0.394	0.769	0.717	0.491	1.000
	5/8	5.0	1.46	0.849	0.482	0.761	0.740	0.849	0.482	0.761	0.740	0.489	1.000
	11/16	5.9	1.73	0.984	0.566	0.753	0.762	0.984	0.566	0.753	0.762	0.487	1.000
	13/16	7.7	2.25	1.230	0.724	0.739	0.806	1.230	0.724	0.739	0.806	0.487	1.000
L 3 x 3 x 3/16 x 1/4 x 5/16 x 3/8 x 1/2	1/2	3.71	1.09	0.962	0.441	0.939	0.820	0.962	0.441	0.939	0.820	0.596	1.000
	9/16	4.9	1.44	1.24	0.577	0.930	0.842	1.24	0.577	0.930	0.842	0.592	1.000
	5/8	6.1	1.78	1.51	0.707	0.922	0.865	1.51	0.707	0.922	0.865	0.589	1.000
	11/16	7.2	2.11	1.76	0.833	0.913	0.888	1.76	0.833	0.913	0.888	0.587	1.000
	13/16	9.4	2.75	2.22	1.07	0.898	0.932	2.22	1.07	0.898	0.932	0.584	1.000
L 3 1/2 x 3 1/2 x 1/4 x 5/16 x 3/8 x 1/2	5/8	5.8	1.69	1.69	0.794	1.09	0.968	2.01	0.794	1.09	0.968	0.694	1.000
	11/16	7.2	2.09	2.09	0.976	1.08	0.990	2.45	0.976	1.08	0.990	0.690	1.000
	3/4	8.5	2.48	2.48	1.15	1.07	1.01	2.87	1.15	1.07	1.01	0.687	1.000
	7/8	11.1	3.25	3.25	1.49	1.06	1.06	3.64	1.49	1.06	1.06	0.683	1.000



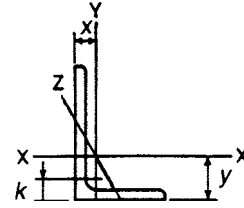
Angles

Equal legs
Properties for designing

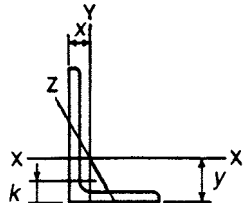
Size and Thickness	k	Weight per ft.	Area	Axis X-X				Axis Y-Y				Axis Z-Z	
				l	S	r	y	l	S	r	x	r	Tan
in.	in.	lb.	in. ²	in. ⁴	in. ³	in.	in.	in. ⁴	in. ³	in.	in.	in.	
L 4 x 4 x 1/4	5/8	6.6	1.94	1.94	1.05	1.25	1.09	3.04	1.05	1.25	1.09	0.795	1.000
x 5/16	1/16	8.2	2.40	2.40	1.29	1.24	1.12	3.71	1.29	1.24	1.12	0.791	1.000
x 3/8	3/4	9.8	2.86	2.86	1.52	1.23	1.14	4.36	1.52	1.23	1.14	0.788	1.000
x 1/2	7/8	12.8	3.75	3.75	1.97	1.22	1.18	5.56	1.97	1.22	1.18	0.782	1.000
x 5/8	1	15.7	4.61	4.61	2.40	1.20	1.23	6.66	2.40	1.20	1.23	0.779	1.000
x 3/4	1 1/8	18.5	5.44	5.44	2.81	1.19	1.27	7.67	2.81	1.19	1.27	0.778	1.000
L 5 x 5 x 5/16	1 3/16	10.3	3.03	7.42	2.04	1.57	1.37	7.42	2.04	1.57	1.37	0.994	1.000
x 3/8	7/8	12.3	3.61	8.74	2.42	1.56	1.39	8.74	2.42	1.56	1.39	0.990	1.000
x 1/2	1	16.2	4.75	11.3	3.16	1.54	1.43	11.3	3.16	1.54	1.43	0.983	1.000
x 5/8	1 1/8	20.0	5.86	13.6	3.86	1.52	1.48	13.6	3.86	1.52	1.48	0.978	1.000
x 3/4	1 1/4	23.6	6.94	15.7	4.53	1.51	1.52	15.7	4.53	1.51	1.52	0.975	1.000
L 6 x 6 x 5/16	1 3/16	12.4	3.65	13.0	2.97	1.89	1.62	13.0	2.97	1.89	1.62	1.20	1.000
x 3/8	7/8	14.9	4.36	15.4	3.53	1.88	1.64	15.4	3.53	1.88	1.64	1.19	1.000
x 1/2	1	19.6	5.75	19.9	4.61	1.86	1.68	19.9	4.61	1.86	1.68	1.18	1.000
x 5/8	1 1/8	24.2	7.11	24.2	5.66	1.84	1.73	24.2	5.66	1.84	1.73	1.18	1.000
x 3/4	1 1/4	28.7	8.44	28.2	6.66	1.83	1.78	28.2	6.66	1.83	1.78	1.17	1.000
x 1	1 1/2	37.4	11.0	35.5	8.57	1.80	1.86	35.5	8.57	1.80	1.86	1.17	1.000
L 8 x 8 x 1/2	1 1/8	26.4	7.75	48.6	8.36	2.50	2.19	48.6	8.36	2.50	2.19	1.59	1.000
x 5/8	1 1/4	32.7	9.61	59.4	10.3	2.49	2.23	59.4	10.3	2.49	2.23	1.58	1.000
x 3/4	1 3/8	38.9	11.4	69.7	12.2	2.47	2.28	69.7	12.2	2.47	2.28	1.58	1.000
x 1	1 5/8	51.0	15.0	89.0	15.8	2.44	2.37	89.0	15.8	2.44	2.37	1.56	1.000
x 1 1/8	1 3/4	56.9	16.7	89.0	17.5	2.42	2.41	98.0	17.5	2.42	2.41	1.56	1.000

Angles

Unequal legs
Properties for designing



Size and Thickness	k	Weight per ft.	Area	Axis X-X				Axis Y-Y				Axis Z-Z	
				<i>I</i>	<i>S</i>	<i>r</i>	<i>y</i>	<i>I</i>	<i>S</i>	<i>r</i>	<i>x</i>	<i>r</i>	Tan
in.	in.	lb.	in. ²	in. ⁴	in. ³	in.	in.	in. ⁴	in. ³	in.	in.	in.	
L 2½ x 2 x ¾	½	2.75	0.809	0.509	0.293	0.793	0.764	0.291	0.196	0.600	0.514	0.427	0.631
x ¼	⅞	3.62	1.06	0.654	0.381	0.784	0.787	0.372	0.254	0.592	0.537	0.424	0.626
x ⅝	⅝	4.5	1.31	0.788	0.466	0.776	0.809	0.446	0.310	0.584	0.559	0.422	0.620
x ⅜	11/16	5.3	1.55	0.912	0.547	0.768	0.831	0.514	0.363	0.577	0.581	0.420	0.614
L 3 x 2 x ¾	½	3.07	0.902	0.842	0.415	0.966	0.970	0.307	0.200	0.583	0.470	0.439	0.446
x ¼	⅞	4.1	1.19	1.09	0.542	0.957	0.993	0.392	0.260	0.574	0.493	0.435	0.440
x ⅝	⅝	5.0	1.46	1.320	0.664	0.948	1.02	0.470	0.317	0.567	0.516	0.432	0.435
x ⅜	11/16	5.9	1.73	1.53	0.781	0.940	1.04	0.543	0.371	0.559	0.539	0.430	0.428
x ½	13/16	7.7	2.25	1.920	1.00	0.924	1.08	0.672	0.474	0.546	0.583	0.428	0.414
L 3 x 2½ x ¾	⅞	3.39	0.996	0.907	0.430	0.954	0.888	0.577	0.310	0.761	0.638	0.533	0.688
x ¼	⅝	4.5	1.31	1.17	0.561	0.945	0.911	0.743	0.404	0.753	0.661	0.528	0.684
x ⅝	11/16	5.6	1.62	1.42	0.688	0.937	0.933	0.898	0.494	0.744	0.683	0.525	0.680
x ⅜	¾	6.6	1.92	1.66	0.810	0.928	0.956	1.04	0.581	0.736	0.706	0.522	0.676
x ½	7/8	8.5	2.50	2.08	1.04	0.913	1.00	1.30	0.744	0.722	0.750	0.520	0.667
L 3½ x 2½ x ¼	11/16	4.9	1.44	1.44	0.755	1.12	1.11	0.777	0.412	0.735	0.614	0.544	0.506
x ⅝	¾	6.1	1.78	1.78	0.927	1.11	1.14	0.939	0.504	0.727	0.637	0.540	0.501
x ⅜	13/16	7.2	2.11	2.11	1.09	1.10	1.16	1.09	0.592	0.719	0.660	0.537	0.496
x ½	15/16	9.4	2.75	2.75	1.41	1.09	1.20	1.36	0.760	0.704	0.705	0.534	0.486
L 3½ x 3½ x ¼	⅝	5.8	1.69	1.69	0.794	1.09	0.968	2.01	0.794	1.09	0.968	0.694	1.000
x ⅝	11/16	7.2	2.09	2.09	0.976	1.08	0.990	2.45	0.976	1.08	0.990	0.690	1.000
x ⅜	¾	8.5	2.48	2.48	1.15	1.07	1.01	2.87	1.15	1.07	1.01	0.687	1.000
x ½	7/8	11.1	3.25	3.25	1.49	1.06	1.06	3.64	1.49	1.06	1.06	0.683	1.000
L 4 x 3 x ¼	11/16	5.8	1.69	1.69	1.00	1.28	1.24	1.36	0.599	0.896	0.736	0.651	0.559
x ⅝	¾	7.2	2.09	2.09	1.23	1.27	1.26	1.65	0.734	0.887	0.759	0.647	0.554
x ⅜	13/16	8.5	2.48	2.48	1.46	1.26	1.28	1.92	0.866	0.879	0.782	0.644	0.551
x ½	15/16	11.1	3.25	3.25	1.89	1.25	1.33	2.42	1.12	0.864	0.827	0.639	0.543
L 4 x 3½ x ¼	11/16	6.2	1.81	1.81	1.03	1.27	1.16	2.09	0.808	1.07	0.909	0.734	0.759
x ⅝	¾	7.7	2.25	2.25	1.26	1.26	1.18	2.55	0.994	1.07	0.932	0.730	0.757
x ⅜	13/16	9.1	2.67	2.67	1.49	1.25	1.21	2.95	1.17	1.06	0.955	0.727	0.755
x ½	15/16	11.9	3.50	3.50	1.94	1.23	1.25	3.79	1.52	1.04	1.00	0.722	0.750



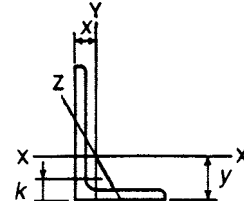
Angles

Unequal legs
Properties for designing

Size and Thickness	k	Weight per ft.	Area	Axis X-X				Axis Y-Y				Axis Z-Z	
				l	S	r	y	l	S	r	x	r	Tan
in.	in.	lb.	in. ²	in. ⁴	in. ³	in.	in.	in. ⁴	in. ³	in.	in.	in.	
L 5 x 3 x 1/4	3/4	6.6	1.94	5.11	1.53	1.62	1.66	1.44	0.614	0.861	0.657	0.663	0.371
x 5/16	13/16	8.2	2.40	6.26	1.89	1.61	1.68	1.75	0.753	0.853	0.681	0.658	0.368
x 3/8	7/8	9.8	2.86	7.37	2.24	1.61	1.70	2.04	0.888	0.845	0.704	0.654	0.364
x 1/2	1	12.8	3.75	9.45	2.91	1.59	1.75	2.58	1.15	0.829	0.750	0.648	0.357
x 5/8	1	15.7	4.61	11.4	3.55	1.57	1.80	3.06	1.39	0.815	0.796	0.644	0.349
L 5 x 3 1/2 x 1/4	3/4	7.0	2.06	5.39	1.57	1.62	1.56	2.23	0.830	1.04	0.814	0.770	0.492
x 5/16	13/16	8.7	2.56	6.60	1.94	1.61	1.59	2.72	1.02	1.03	0.838	0.776	0.489
x 3/8	7/8	10.4	3.05	7.78	2.29	1.60	1.61	3.18	1.21	1.02	0.861	0.762	0.486
x 1/2	1	13.6	4.00	9.99	2.99	1.58	1.66	4.05	1.56	1.01	0.906	0.755	0.479
x 5/8	1 1/8	16.8	4.92	12.0	3.65	1.56	1.70	4.83	1.90	0.991	0.951	0.751	0.472
x 3/4	1 1/4	19.8	5.81	13.9	4.28	1.55	1.75	5.55	2.22	0.977	0.996	0.748	0.464
L 6 x 3 1/2 x 5/16	13/16	9.8	2.87	10.9	2.73	1.95	2.01	2.85	1.04	0.996	0.763	0.772	0.352
x 3/8	7/8	11.7	3.42	12.9	3.24	1.94	2.04	3.34	1.23	0.998	0.787	0.767	0.350
x 1/2	1	15.3	4.50	16.6	4.24	1.92	2.08	4.25	1.59	0.972	0.833	0.759	0.344
L 6 x 4 x 5/16	13/16	10.3	3.03	11.4	2.79	1.94	1.92	4.18	1.35	1.17	0.918	0.882	0.448
x 3/8	7/8	12.3	3.61	13.5	3.32	1.93	1.94	4.90	1.60	1.17	0.941	0.877	0.446
x 1/2	1	16.2	4.75	17.4	4.33	1.91	1.99	6.27	2.08	1.15	0.987	0.870	0.440
x 5/8	1 1/8	20.0	5.86	21.1	5.31	1.90	2.03	7.52	2.54	1.13	1.03	0.864	0.435
x 3/4	1 1/4	23.6	6.94	24.5	6.25	1.88	2.08	8.68	2.97	1.12	1.08	0.860	0.428
L 7 x 4 x 3/8	7/8	13.6	3.98	20.6	4.44	2.27	2.37	5.10	1.63	1.13	0.870	0.880	0.340
x 1/2	1	17.9	5.25	26.7	5.81	2.25	2.42	6.53	2.12	1.11	0.917	0.872	0.335
x 5/8	1 1/8	22.1	6.48	32.4	7.14	2.24	2.46	7.84	2.58	1.10	0.963	0.865	0.329
x 3/4	1 1/4	26.2	7.69	37.8	8.42	2.22	2.51	9.05	3.03	1.09	1.01	0.860	0.324
L 8 x 4 x 1/2	1	19.6	5.75	38.5	7.49	2.59	2.86	6.74	2.15	1.08	0.859	0.865	0.267
x 3/4	1 1/4	28.7	8.44	54.9	10.9	2.55	2.95	9.36	3.07	1.05	0.953	0.852	0.258
x 1	1 1/2	37.4	11.0	69.6	14.1	2.52	3.05	11.6	3.94	1.03	1.05	0.846	0.247

Angles

Unequal legs
Properties for designing



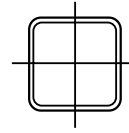
Size and Thickness	k	Weight per ft.	Area	Axis X-X				Axis Y-Y				Axis Z-Z	
				<i>I</i>	<i>S</i>	<i>r</i>	<i>y</i>	<i>I</i>	<i>S</i>	<i>r</i>	<i>x</i>	<i>r</i>	Tan
in.	in.	lb.	in. ²	in. ⁴	in. ³	in.	in.	in. ⁴	in. ³	in.	in.	in.	
L 8 x 6 x 7/16	15/16	20.2	5.93	39.2	7.07	2.57	2.45	19.3	4.23	1.80	1.45	1.31	0.560
x 1/2	1	23.0	6.75	44.3	8.02	2.56	2.47	21.7	4.79	1.79	1.47	1.30	0.558
x 5/8	1 1/8	28.5	8.36	54.1	9.87	2.54	2.52	26.3	5.88	1.77	1.52	1.29	0.554
x 3/4	1 1/4	33.8	9.94	63.4	11.7	2.53	2.56	30.7	6.92	1.76	1.56	1.29	0.551
x 1	1 1/2	44.2	13.0	80.8	15.1	2.49	2.65	38.8	8.92	1.73	1.65	1.28	0.543
L 9 x 4 x 5/8	1	21.3	6.25	53.2	9.34	2.92	3.31	6.92	2.17	1.05	0.810	0.854	0.220
x 9/16	1 1/16	23.8	7.00	59.1	10.4	2.91	3.33	7.63	2.41	1.04	0.834	0.850	0.218
x 1/2	1 1/8	26.3	7.73	64.9	11.5	2.90	3.36	8.32	2.65	1.04	0.810	0.847	0.216

Square Tubing
TAB (front)

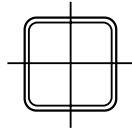
Square Tubing All Sizes

**Square Tubing
TAB (back)**

**Structural Tubing
Square**
Dimensions and Properties



Square Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	Square Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	
	in.	lb./ft.	in. ²		in.	lb./ft.	in. ²	
2 x 2 x 1/8	0.116	3.04	0.840	5 x 5 x 1/8	0.116	8.15	2.23	
	x 3/16	0.174	4.30		x 3/16	0.174	11.96	3.28
	x 1/4	0.233	5.38		x 1/4	0.233	15.58	4.30
2 1/4 x 2 1/4 x 1/8	0.116	3.47	0.956	x 5/16	0.291	19.03	5.26	
	x 3/16	0.174	4.94	x 3/8	0.349	22.30	6.18	
	x 1/4	0.233	6.23	x 1/2	0.465	28.30	7.88	
2 1/2 x 2 1/2 x 1/8	0.116	3.90	1.07	5 1/2 x 5 1/2 x 1/8	0.116	9.00	2.46	
	x 3/16	0.174	5.57		x 3/16	0.174	13.23	3.63
	x 1/4	0.233	7.08		x 1/4	0.233	17.28	4.77
	x 5/16	0.291	8.40		x 5/16	0.291	21.16	5.85
3 x 3 x 1/8	0.116	4.75	1.03	x 3/8	0.349	24.85	6.88	
	x 3/16	0.174	6.85	6 x 6 x 1/8	0.116	9.85	2.70	
	x 1/4	0.233	8.78		x 3/16	0.174	14.51	3.98
	x 5/16	0.291	10.53		x 1/4	0.233	18.99	5.24
	x 3/8	0.349	12.09		x 5/16	0.291	23.29	6.43
3 1/2 x 3 1/2 x 1/8	0.116	5.60	1.54		x 3/8	0.349	27.41	7.58
	x 3/16	0.174	8.13	x 1/2	0.465	35.11	9.74	
	x 1/4	0.233	10.48	x 5/8	0.581	42.10	11.7	
	x 5/16	0.291	12.65	7 x 7 x 1/8	0.116	11.55	3.16	
	x 3/8	0.349	14.65		x 3/16	0.174	17.06	4.67
4 x 4 x 1/8	0.116	6.45	1.77		x 1/4	0.233	22.39	6.17
	x 3/16	0.174	9.40		x 5/16	0.291	27.54	7.59
	x 1/4	0.233	12.18		x 3/8	0.349	32.51	8.97
	x 5/16	0.291	14.78	x 1/2	0.465	41.91	11.6	
	x 3/8	0.349	17.20	x 5/8	0.581	50.60	14.0	
4 1/2 x 4 1/2 x 1/8	0.116	7.30	2.00	8 x 8 x 1/8	0.116	13.25	3.62	
	x 3/16	0.174	10.68		x 3/16	0.174	19.61	5.37
	x 1/4	0.233	13.88		x 1/4	0.233	25.79	7.10
	x 5/16	0.291	16.91		x 5/16	0.291	31.79	8.76
	x 3/8	0.349	19.75		x 3/8	0.349	37.61	10.4
x 1/2	0.465	24.90	6.95	x 1/2	0.465	48.72	13.5	
				x 5/8	0.581	59.11	16.4	



Structural Tubing Square

Dimensions and Properties

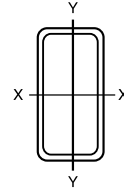
Square Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	Square Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>
	in.	lb./ft.	in. ²		in.	lb./ft.	in. ²
9 x 9	x 1/8	0.116	14.95	12 x 12	x 3/16	0.174	29.82
	x 3/16	0.174	22.16		x 1/4	0.233	39.40
	x 1/4	0.233	29.19		x 5/16	0.291	48.81
	x 5/16	0.291	36.05		x 3/8	0.349	58.03
	x 3/8	0.349	42.72		x 1/2	0.465	75.94
	x 1/2	0.465	55.53		x 5/8	0.581	93.14
	x 5/8	0.581	67.62				
10 x 10	x 3/16	0.174	24.72	14 x 14	x 3/16	0.291	57.31
	x 1/4	0.233	32.60		x 3/8	0.349	68.24
	x 5/16	0.291	40.30		x 1/2	0.456	89.55
	x 3/8	0.349	47.82		x 5/8	0.581	110.00
	x 1/2	0.465	62.33	16 x 16	x 3/16	0.291	65.82
	x 5/8	0.581	76.13		x 3/8	0.349	78.45
					x 1/2	0.456	103.00
				x 5/8	0.581	127.00	

Rectangular Tubing
TAB (front)

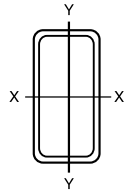
Rectangular Tubing / Pipe All Sizes

**Rectangular Tubing
TAB (back)**

**Structural Tubing
Rectangular**
Dimensions and Properties



Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	
	in.	lb./ft.	in. ²		in.	lb./ft.	in. ²	
2 x 1 x 1/8	0.116	2.19	0.608	3 1/2 x 1 1/2 x 1/8	0.116	3.90	1.07	
	x 3/16	0.174	3.03		x 3/16	0.174	5.59	1.54
2 x 1 1/2 x 1/8	0.116	2.62	0.724	3 1/2 x 2 x 1/8	0.116	4.32	1.19	
	x 3/16	0.174	3.67		x 3/16	0.174	6.23	1.71
2 1/4 x 2 x 1/8	0.116	3.26	0.898	3 1/2 x 2 1/2 x 1/8	0.116	4.75	1.30	
	3/16	0.174	4.63		x 3/16	0.174	6.87	1.89
2 1/2 x 1 x 1/8	0.116	2.62	0.724	4 x 2 x 1/8	0.116	4.75	1.30	
	x 3/16	0.174	3.67		x 3/16	0.174	6.87	1.89
2 1/2 x 1 1/2 x 1/8	0.116	3.04	0.840	4 x 2 x 1/8	x 1/4	0.233	8.78	2.44
	x 3/16	0.174	4.31		x 5/16	0.291	10.54	2.94
2 1/2 x 2 x 1/8	0.116	3.47	0.956	4 x 2 x 1/8	x 3/8	0.349	12.09	3.39
	x 3/16	0.174	4.95		x 1/4	0.233	8.78	2.44
2 1/2 x 2 x 1/8	0.116	3.47	0.956	4 x 3 x 1/8	x 3/16	0.174	8.15	2.24
	x 3/16	0.174	4.95		x 1/4	0.233	10.48	2.91
3 x 1 x 1/8	0.116	3.04	0.840	4 x 3 x 1/8	x 5/16	0.291	12.67	3.52
	x 3/16	0.174	4.31		x 3/8	0.349	14.65	4.09
3 x 1 1/2 x 1/8	0.116	3.47	0.956	5 x 2 x 1/8	0.116	5.60	1.54	
	x 3/16	0.174	4.95		x 3/16	0.174	8.15	2.24
3 x 1 1/2 x 1/8	0.116	3.47	0.956	5 x 2 x 1/8	x 1/4	0.233	10.48	2.91
	x 3/16	0.174	4.95		x 5/16	0.291	12.67	3.52
3 x 2 x 1/8	0.116	3.90	1.07	5 x 2 x 1/8	x 3/8	0.349	14.65	4.09
	x 3/16	0.174	5.59		0.116	5.60	1.54	
3 x 2 x 1/8	0.116	3.90	1.07	5 x 3 x 1/8	0.116	6.45	1.77	
	x 3/16	0.174	5.59		x 3/16	0.174	9.43	2.58
3 x 2 x 1/8	0.116	3.90	1.07	5 x 3 x 1/8	x 1/4	0.233	12.18	3.37
	x 3/16	0.174	5.59		x 1/4	0.233	12.18	3.37
3 x 2 1/2 x 1/8	0.116	4.32	1.19	5 x 3 x 1/8	x 5/16	0.291	14.80	4.10
	x 3/16	0.174	6.23		x 3/8	0.349	17.20	4.78
3 x 2 1/2 x 1/8	0.116	4.32	1.19	5 x 3 x 1/8	x 1/2	0.465	21.50	6.02
	x 3/16	0.174	6.23		0.116	6.45	1.77	
3 x 2 1/2 x 1/8	0.116	4.32	1.19	5 x 3 x 1/8	x 3/16	0.174	9.43	2.58
	x 3/16	0.174	6.23		x 1/4	0.233	12.18	3.37
3 x 2 1/2 x 1/8	0.116	4.32	1.19	5 x 3 x 1/8	x 5/16	0.291	14.80	4.10
	x 3/16	0.174	6.23		x 3/8	0.349	17.20	4.78
3 x 2 1/2 x 1/8	0.116	4.32	1.19	5 x 3 x 1/8	x 1/2	0.465	21.50	6.02
	x 3/16	0.174	6.23		0.116	6.45	1.77	
3 x 2 1/2 x 1/8	0.116	4.32	1.19	5 x 3 x 1/8	x 3/16	0.174	9.43	2.58
	x 3/16	0.174	6.23		x 1/4	0.233	12.18	3.37
3 x 2 1/2 x 1/8	0.116	4.32	1.19	5 x 3 x 1/8	x 5/16	0.291	14.80	4.10
	x 3/16	0.174	6.23		x 3/8	0.349	17.20	4.78
3 x 2 1/2 x 1/8	0.116	4.32	1.19	5 x 3 x 1/8	x 1/2	0.465	21.50	6.02
	x 3/16	0.174	6.23		0.116	6.45	1.77	



Structural Tubing Rectangular

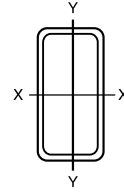
Dimensions and Properties

Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>		
	in.	lb./ft.	in. ²		in.	lb./ft.	in. ²		
5 x 4 x 1/8	0.116	7.30	2.00	7 x 3 x 1/8	0.116	8.15	2.23		
	x 3/16	0.174	10.70		2.93	x 3/16	0.174	11.98	3.28
	x 1/4	0.233	13.88		3.84	x 1/4	0.233	15.58	4.30
	x 5/16	0.291	16.93		4.68	x 5/16	0.291	19.06	5.26
	x 3/8	0.349	19.75		5.48	x 3/8	0.349	22.30	6.18
	x 1/2	0.465	24.90		6.95	x 1/2	0.465	28.30	7.88
6 x 2 x 1/8	0.116	6.45	1.77	7 x 4 x 1/8	0.116	9.00	2.46		
	x 3/16	0.174	9.43		2.58	x 3/16	0.174	13.26	3.63
	x 1/4	0.233	12.18		3.37	x 1/4	0.233	17.28	4.77
	x 5/16	0.291	14.80		4.10	x 5/16	0.291	21.19	5.85
	x 3/8	0.349	17.20		4.78	x 3/8	0.349	24.85	6.88
6 x 3 x 1/8	0.116	7.30	2.00	7 x 5 x 1/8	0.116	9.85	2.70		
	x 3/16	0.174	10.70		2.93	x 3/16	0.174	14.54	3.98
	x 1/4	0.233	13.88		3.84	x 1/4	0.233	18.99	5.24
	x 5/16	0.291	16.93		4.68	x 5/16	0.291	23.32	6.43
	x 3/8	0.349	19.75		5.48	x 3/8	0.349	27.41	7.58
	x 1/2	0.465	24.90		6.95	x 1/2	0.465	35.11	9.74
6 x 4 x 1/8	0.116	8.15	2.23	8 x 2 x 1/8	0.116	8.15	2.23		
	x 3/16	0.174	11.98		3.28	x 3/16	0.174	11.98	3.28
	x 1/4	0.233	15.58		4.30	x 1/4	0.233	15.58	4.30
	x 5/16	0.291	19.06		5.26	x 5/16	0.291	19.06	5.26
	x 3/8	0.349	22.30		6.18	x 3/8	0.349	22.30	6.18
	x 1/2	0.465	28.30		7.88	x 1/2	0.465	28.30	7.88
6 x 5 x 1/8	0.116	9.00	2.46	8 x 3 x 1/8	0.116	9.00	2.46		
	x 3/16	0.174	13.26		3.63	x 3/16	0.174	13.26	3.63
	x 1/4	0.233	17.28		4.77	x 1/4	0.233	17.28	4.77
	x 5/16	0.291	21.19		5.85	x 5/16	0.291	21.19	5.85
	x 3/8	0.349	24.85		6.88	x 3/8	0.349	24.85	6.88
	x 1/2	0.465	31.71		8.81	x 1/2	0.465	31.71	8.81
7 x 2 x 1/8	0.116	7.30	2.00						
	x 3/16	0.174	10.70	2.93					
	x 1/4	0.233	13.88	3.84					

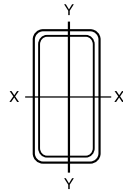
Structural Tubing

Rectangular

Dimensions and Properties



Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>			
	in.		lb./ft.		in. ²		in.	lb./ft.	in. ²	
8 x 4 x 1/8	0.116	9.85	2.70	10 x 2 x 1/8	0.116	9.85	2.70			
	x 3/16	0.174	14.54		3.98	x 3/16	0.174	14.54	3.98	
	x 1/4	0.233	18.99		5.24	x 1/4	0.233	18.99	5.24	
	x 5/16	0.291	23.32		6.43	x 5/16	0.291	23.32	6.43	
	x 3/8	0.349	27.41		7.58	x 3/8	0.349	27.41	7.58	
	x 1/2	0.465	35.11		9.74	10 x 3 x 1/8	0.116	10.70	2.93	
	x 5/8	0.581	42.10		11.7		x 3/16	0.174	15.82	4.32
8 x 6 x 3/16	0.174	17.10	4.67	x 1/4	0.233		20.69	5.70		
	x 1/4	0.233	22.39	6.17	x 5/16		0.291	25.45	7.01	
	x 5/16	0.291	27.58	7.59	x 3/8		0.349	29.96	8.27	
	x 3/8	0.349	32.51	8.97	10 x 4 x 1/8		0.116	11.55	3.16	
	x 1/2	0.465	41.91	11.6			x 3/16	0.174	17.10	4.67
	x 5/8	0.581	50.60	14.0		x 1/4	0.233	22.39	6.17	
	9 x 3 x 3/16	0.174	14.54	3.98		x 5/16	0.291	27.58	7.59	
x 1/4		0.233	18.99	5.24		x 3/8	0.349	32.51	8.97	
x 5/16		0.291	23.32	6.43		x 1/2	0.465	41.91	11.6	
x 3/8		0.349	27.41	7.58		x 5/8	0.581	50.60	14.0	
x 1/2		0.465	35.11	9.74	10 x 5 x 3/16	0.174	18.38	5.02		
9 x 5 x 3/16		0.174	17.10	4.67		x 1/4	0.233	24.09	6.63	
		x 1/4	0.233	22.39		6.17	x 5/16	0.291	29.71	8.17
	x 5/16	0.291	27.58	7.59		x 3/8	0.349	35.06	9.67	
	x 3/8	0.349	32.51	8.97		10 x 6 x 3/16	0.174	19.66	5.37	
	x 1/2	0.465	41.91	11.6			x 1/4	0.233	25.79	7.10
	x 5/8	0.581	50.60	14.0			x 5/16	0.291	31.84	8.76
	9 x 7 x 3/16	0.174	19.66	5.37	x 3/8		0.349	37.61	10.4	
x 1/4		0.233	25.79	7.10	x 1/2		0.465	48.72	13.5	
x 5/16		0.291	31.84	8.76	x 5/8		0.581	59.11	16.4	
x 3/8		0.349	37.61	10.4						
x 1/2		0.465	48.72	13.5						
x 5/8		0.581	59.11	16.4						



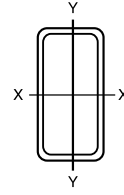
Structural Tubing Rectangular

Dimensions and Properties

Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>
	in.	lb./ft.	in. ²		in.	lb./ft.	in. ²
10 x 8 x 3/16	0.174	22.22	6.06	12 x 10 x 1/4	0.233	36.00	9.90
	x 1/4 0.233	29.19	8.03		x 5/16 0.291	44.62	12.2
	x 5/16 0.291	36.10	9.92		x 3/8 0.349	52.93	14.6
	x 3/8 0.349	42.72	11.8		x 1/2 0.465	69.14	19.0
	x 1/2 0.465	55.53	15.3				
	x 5/8 0.581	67.62	18.7				
12 x 2 x 3/16	0.174	17.10	4.67	14 x 4 x 3/16	0.174	22.12	6.06
	x 1/4 0.233	22.39	6.17		x 1/4 0.233	29.25	8.03
	x 5/16 0.291	27.58	7.59		x 5/16 0.291	36.09	9.92
			x 3/8 0.349		42.75	11.8	
			x 1/2 0.465		55.53	15.3	
12 x 3 x 3/16	0.174	18.38	5.02	x 5/8 0.581	67.59	18.7	
	x 1/4 0.233	24.09	6.63	14 x 6 x 3/16	0.174	24.66	6.76
	x 5/16 0.291	29.71	8.17		x 1/4 0.233	32.66	8.96
			x 5/16 0.291		40.35	11.1	
			x 3/8 0.349		47.86	13.2	
			x 1/2 0.465		62.33	17.2	
12 x 4 x 3/16	0.174	19.66	5.37	x 5/8 0.581	76.09	21.0	
	x 1/4 0.233	25.79	7.10	14 x 10 x 1/4	0.233	39.48	10.8
	x 5/16 0.291	31.84	8.76		x 5/16 0.291	48.87	13.4
	x 3/8 0.349	37.61	10.4		x 3/8 0.349	58.07	16.0
	x 1/2 0.465	48.72	13.5		x 1/2 0.465	75.94	20.9
	x 5/8 0.581	59.11	16.4		x 5/8 0.581	93.10	25.7
12 x 6 x 3/16	0.174	22.22	6.06	16 x 4 x 3/16	0.174	24.66	6.76
	x 1/4 0.233	29.19	8.03		x 1/4 0.233	32.66	8.96
	x 5/16 0.291	36.10	9.92		x 5/16 0.291	40.35	11.1
	x 3/8 0.349	42.72	11.8		x 3/8 0.349	47.86	13.2
	x 1/2 0.465	55.53	15.3		x 1/2 0.465	62.33	17.2
	x 5/8 0.581	67.62	18.7		x 5/8 0.581	76.09	21.0
12 x 8 x 3/16	0.174	24.78	6.76	16 x 8 x 1/4	0.233	39.48	10.8
	x 1/4 0.233	32.60	8.96		x 5/16 0.291	48.87	13.4
	x 5/16 0.291	40.36	11.1		x 3/8 0.349	58.07	16.0
	x 3/8 0.349	47.82	13.2		x 1/2 0.465	75.94	20.9
	x 1/2 0.465	62.33	17.2		x 5/8 0.581	93.10	25.7
	x 5/8 0.581	76.13	21.0				

Structural Tubing Rectangular

Dimensions and Properties



Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	Rectangular Tube	Design Wall Thickness, <i>t</i>	Nominal wt.	Area <i>A</i>	
	in.	lb./ft.	in. ²		in.	lb./ft.	in. ²	
16 x 12 x 5/16	0.291	57.38	15.7	20 x 8 x 5/16	0.291	57.31	15.7	
	x 3/8	0.349	68.29		x 3/8	0.349	68.29	18.7
	x 1/2	0.465	89.55		x 1/2	0.465	89.55	24.6
	x 5/8	0.581	110.00		x 5/8	0.581	110.00	30.3
18 x 6 x 1/4	0.233	39.48	10.8	20 x 12 x 5/16	0.291	65.82	18.1	
	x 5/16	0.291	48.87		x 3/8	0.349	78.45	21.5
	x 3/8	0.349	58.07		x 1/2	0.465	103.00	28.3
	x 1/2	0.465	75.94		x 5/8	0.581	127.00	35.0
	x 5/8	0.581	93.10					
20 x 4 x 1/4	0.233	39.48	10.8					
	x 5/16	0.291	48.87					
	x 3/8	0.349	58.07					
	x 1/2	0.465	75.94					



Pipe

Dimensions and Properties

Dimensions				Weight per ft. lbs. Plain Ends	Properties				Schedule No.
Nominal Diameter in.	Outside Diameter in.	Inside Diameter in.	Wall Thickness in.		A in. ²	I in. ⁴	S in. ³	r in.	
Standard Weight									
½	.840	.622	.85	.250	.017	.041	.041	.261	40
¾	1.050	.824	1.13	.333	.037	.071	.071	.334	40
1	1.315	1.049	1.68	.494	.087	.133	.133	.421	40
1¼	1.660	1.380	2.27	.669	.195	.235	.235	.540	40
1½	1.900	1.610	2.72	.799	.310	.326	.326	.623	40
2	2.375	2.067	3.65	1.07	.666	.561	.561	.787	40
2½	2.875	2.469	5.79	1.70	1.53	1.06	1.06	.947	40
3	3.500	3.068	7.58	2.23	3.02	1.72	1.72	1.16	40
3½	4.000	3.548	9.11	2.68	4.79	2.39	2.39	1.34	40
4	4.500	4.026	10.79	3.17	7.23	3.21	3.21	1.51	40
5	5.563	5.047	14.62	4.30	15.2	5.45	5.45	1.88	40
6	6.625	6.065	18.97	5.58	28.1	8.50	8.50	2.25	40
8	8.625	7.981	28.55	8.40	72.5	16.8	16.8	2.94	40
10	10.750	10.020	40.48	11.9	161	29.9	29.9	3.67	40
12	12.750	12.000	49.56	14.6	279	43.8	43.8	4.38	—
Extra Strong									
½	.840	.546	.147	1.09	.320	.020	.048	.250	80
¾	1.050	.742	.154	1.47	.433	.045	.085	.321	80
1	1.315	.957	.179	2.17	.639	.106	.161	.407	80
1¼	1.660	1.278	.191	3.00	.881	.242	.291	.524	80
1½	1.900	1.500	.200	3.63	1.07	.391	.412	.605	80
2	2.375	1.939	.218	5.02	1.48	.868	.731	.766	80
2½	2.875	2.323	.276	7.66	2.25	1.92	1.34	.924	80
3	3.500	2.900	.300	10.25	3.02	3.89	2.23	1.14	80
3½	4.000	3.364	.318	12.50	3.68	6.28	3.14	1.31	80
4	4.500	3.826	.337	14.98	4.41	9.61	4.27	1.48	80
5	5.563	4.813	.375	20.78	6.11	20.7	7.43	1.84	80
6	6.625	5.761	.432	28.57	8.40	40.5	12.2	2.19	80
8	8.625	7.625	.500	43.39	12.8	106	24.5	2.88	80
10	10.750	9.750	.500	54.74	16.1	212	39.4	3.63	60
12	12.750	11.750	.500	65.42	19.2	362	56.7	4.33	—
Double-Extra Strong									
2	2.375	1.503	.436	9.03	2.66	1.31	1.10	.703	—
2½	2.875	1.771	.552	13.69	4.03	2.87	2.00	.844	—
3	3.500	2.300	.600	18.58	5.47	5.99	3.42	1.05	—
4	4.500	3.152	.674	27.54	8.10	15.3	6.79	1.37	—
5	5.563	4.063	.750	38.55	11.3	33.6	12.1	1.72	—
6	6.625	4.897	.864	53.16	15.6	66.3	20.0	2.06	—
8	8.625	6.875	.875	72.42	21.3	162	37.6	2.76	—

The listed sections are available in conformance with ASTM Specification A53 Grade B or A501. Other sections are made to these specifications. Consult with pipe manufacturers or distributors for availability.

PLATE
TAB (front)

Universal Mill Plate & Plate

**PLATE
TAB (back)**

Universal Mill Plate & Plate

Universal Mill Plate								
Weight in Pounds								
Size	Per Foot	20'	Size	Per Foot	20'	Size	Per Foot	20'
¼ x 9	7.66	153.14	½ x 9	15.31	306.29	1 x 9	30.63	612.58
x 10	8.51	170.16	x 10	17.02	340.32	x 10	34.03	680.64
x 12	10.21	204.19	x 12	20.42	408.38	x 12	40.84	816.77
⅝ x 9	9.57	191.43	⅝ x 9	19.14	382.86	1¼ x 10	42.54	850.80
x 10	10.64	212.70	x 10	21.27	425.40	x 12	51.05	1020.96
x 12	12.76	255.24	x 12	25.52	510.48	1½ x 10	51.05	1020.96
¾ x 9	11.49	229.72	¾ x 9	22.97	459.43	x 12	61.26	1255.15
x 10	2.76	255.24	x 10	25.52	510.48			
x 12	15.31	306.29	x 12	30.63	612.57			

Plate				
Size	Weight Per Plate	Size	Weight Per Plate	
3/16	7.66# / Sq. Ft.	1/4	10.21# / Sq. Ft.	
48 x 96	245.05	48 x 96	326.71	
x 120	306.32	x 120	408.38	
x 144	367.58	x 144	490.06	
x 240	612.63	x 240	816.77	
60 x 96	306.32	60 x 96	408.38	
x 120	382.90	x 120	510.48	
x 144	459.47	x 144	612.58	
x 240	765.79	x 240	1020.96	
x 360	1148.69	x 360	1531.44	
72 x 96	367.58	72 x 96	490.06	
x 120	459.47	x 120	612.58	
x 144	551.37	x 144	735.09	
x 240	918.95	x 240	1225.15	
x 360	1378.42	x 360	1837.73	
84 x 96	428.84	84 x 96	571.74	
x 120	536.05	x 120	714.67	
x 144	643.26	x 144	857.61	
x 240	1072.11	x 240	1429.34	
x 360	1608.16	x 360	2144.02	
96 x 120	612.63	96 x 120	816.77	
x 144	735.16	x 144	980.12	
x 240	1225.26	x 240	1633.54	
x 360	1837.90	x 360	2450.30	

Plate

Plate			
Size	Weight Per Plate	Size	Weight Per Plate
1/2	20.42# / Sq. Ft.	5/8	25.52# / Sq. Ft.
	48 x 96		96 x 120
	x 120		x 240
	x 144		x 360
	x 240		
	60 x 96	11/16	28.08# / Sq. Ft.
	x 120		
	x 144	3/4	30.63# / Sq. Ft.
	x 240		48 x 96
	x 360		x 120
	72 x 96		x 144
	x 120		x 240
	x 144		60 x 96
	x 240		x 120
	x 360		x 144
	84 x 96		x 240
	x 120		x 360
	x 144		72 x 96
	x 240		x 120
	x 360		x 144
	96 x 120		x 240
	x 144		x 360
	x 240		84 x 96
	x 360		x 120
	x 480		x 144
	120 x 240		x 240
	x 360		x 360
	x 480		96 x 120
			x 144
9/16	22.97# / Sq. Ft.		x 240
			x 360
5/8	25.52# / Sq. Ft.		x 480
	48 x 96		120 x 240
	x 120		x 360
	60 x 120		x 480
	x 240		
	72 x 120		
	x 240		
	84 x 120		
	x 240		

Plate

Plate			
Size	Weight Per Plate	Size	Weight Per Plate
13/16	33.18# / Sq. Ft.	1	40.84# / Sq. Ft.
7/8	35.73# / Sq. Ft.		84 x 96
	48 x 96		x 120
	x 120		x 144
	x 144		x 240
	x 240		x 340
	60 x 96		96 x 120
	x 120		x 144
	x 144		x 240
	x 240		x 360
	72 x 120		x 480
	x 240		120 x 240
	84 x 120		x 360
	x 240		x 480
	96 x 120	1 1/8	45.94# / Sq. Ft.
	x 240	1 1/4	51.05# / Sq. Ft.
	x 360		48 x 96
15/16	38.29# / Sq. Ft.		x 120
1	40.84# / Sq. Ft.		60 x 120
	48 x 96		x 240
	x 120		72 x 120
	x 144		x 240
	x 240		84 x 120
	60 x 96		x 240
	x 120		96 x 120
	x 144		x 240
	x 240		x 360
	x 360	1 3/16	48.50# / Sq. Ft.
	72 x 96	1 3/8	56.15# / Sq. Ft.
	x 120		
	x 144		
	x 240		
	x 360		

Plate

Plate			
Size	Weight Per Plate	Size	Weight Per Plate
1 1/2	61.26# / Sq. Ft.	1 7/8	76.57# / Sq. Ft.
	48 x 96		
	x 120		
	60 x 120	2	81.68# / Sq. Ft.
	x 240		48 x 96
	72 x 120		x 120
	x 240		60 x 120
	84 x 120		x 240
	x 240		72 x 120
	96 x 120		x 240
	x 240		84 x 120
	x 360		x 240
			96 x 120
			x 240
			x 360
1 5/8	66.36# / Sq. Ft.		
1 3/4	71.47# / Sq. Ft.		
	48 x 96		
	x 120		
	60 x 120		
	x 240		
	72 x 120		
	x 240		
	84 x 120		
	x 240		
	96 x 120		
	x 240		
	x 360		

Strip, Flat, round...
TAB (front)

Strip
Flat Bar
Round Bar
Square Bar
Rebar

Strip, Flat,round...
TAB (back)

Hot Rolled Strip & Hot Rolled Flat Bar

Hot Rolled Strip						Hot Rolled Flat Bar					
Weight in Pounds						Weight in Pounds					
Size	Per Foot	20'	Size	Per Foot	20'	Size	Per Foot	20'	Size	Per Foot	20'
1/8 x 1/2	0.213	4.26	3/16 x 1/2	0.319	6.38	7/8 x 6	17.85	357.00	1 1/2 x 2	10.20	204.00
x 5/8	0.266	5.32	x 5/8	0.398	7.96	x 7	20.83	416.60	x 2 1/2	12.75	255.00
x 3/4	0.319	6.38	x 3/4	0.478	9.56	x 8	23.80	470.00	x 3	15.30	306.00
x 7/8	0.372	7.44	x 7/8	0.558	11.16				x 4	20.40	408.00
x 1	0.425	8.50	x 1	0.638	12.76	1 x 1 1/2	5.10	102.00	x 5	25.50	510.00
x 1 1/4	0.531	10.62	x 1 1/4	0.797	15.94	x 2	6.80	136.00	x 6	30.60	612.00
x 1 1/2	0.638	12.76	x 1 1/2	0.956	19.12	x 2 1/2	8.50	170.00	x 7	35.70	714.00
x 1 3/4	0.744	14.88	x 1 3/4	1.120	22.40	x 3	10.20	204.00	x 8	40.80	816.00
x 2	0.850	17.00	x 2	1.280	25.60	x 3 1/2	11.90	238.00			
x 2 1/4	0.956	19.12	x 2 1/4	1.430	28.60	x 4	13.60	272.00	1 3/4 x 4	23.80	476.00
x 2 1/2	1.063	21.26	x 2 1/2	1.594	31.88	x 4 1/2	15.30	306.00	x 4 1/2	26.77	535.40
x 2 3/4	1.169	23.38	x 2 3/4	1.753	35.06	x 5	17.00	340.00	x 5	29.75	595.00
x 3	1.275	25.50	x 3	1.913	38.26	x 6	20.40	408.00	x 6	35.70	714.00
x 3 1/2	1.488	29.76	x 3 1/2	2.230	44.60	x 7	23.80	476.00	x 7	41.65	833.00
x 4	1.700	34.00	x 4	2.550	51.00	x 8	27.20	544.00	x 8	47.60	952.00
x 4 1/2	1.913	38.26	x 5	3.188	63.76						
x 5	2.125	42.50	6	3.825	76.50	1 1/8 x 2	7.65	153.00	2 x 2 1/2	17.00	340.00
x 6	2.550	51.00	x 7	4.463	89.25	x 2 1/2	9.56	191.20	x 3	20.40	408.00
x 7	2.975	59.50	x 8	5.100	102.00	x 3	11.48	229.60	x 4	27.20	544.00
x 8	3.400	68.00	x 10	6.375	127.50	x 4	15.30	306.00	x 5	34.00	680.00
x 10	4.250	85.00	x 12	7.650	153.00	x 5	19.13	382.00	x 6	40.80	816.00
x 12	5.100	102.00				x 6	22.95	459.00	x 7	47.60	952.00
x 16	6.800	136.00							x 8	54.40	1088.00
						1 1/4 x 2	8.50	170.00			
						x 2 1/2	10.63	212.50			
						x 3	12.75	255.00			
						x 4	17.00	340.00			
						x 5	21.25	425.00			
						x 6	25.50	510.00			
						x 7	29.75	595.00			
						x 8	34.00	680.00			

Hot Rolled Round Bar & Hot Rolled Square Bar

Hot Rolled Round Bar								
Theoretical Weight in Pounds								
Size	Per Foot (1)	20'	Size	Per Foot (1)	20'	Size	Per Foot (1)	20'
1/4	0.167	3.34	2 1/8	12.060	241.20	5 3/4	88.29	1765.80
5/16	0.261	5.22	2 1/4	13.520	270.40	6	96.13	1922.60
3/8	0.376	7.52	2 3/8	15.060	301.20	6 1/4	104.31	2086.20
7/16	0.511	10.22	2 1/2	16.690	333.80	6 1/2	112.82	2256.40
1/2	0.668	13.36	2 5/8	18.400	368.00	6 3/4	121.67	2433.40
9/16	0.845	16.90	2 3/4	20.190	403.80	7	130.85	2617.00
5/8	1.043	20.86	3	24.030	480.60	7 1/4	140.36	2807.20
3/4	1.500	30.00	3 1/4	28.210	564.20	7 1/2	150.21	3004.20
7/8	2.040	40.80	3 1/2	32.170	654.20	7 3/4	160.40	3208.00
1	2.670	53.40	3 3/8	35.090	701.80	8	170.90	3418.00
1 1/8	3.380	67.60	3 3/4	37.550	751.00	8 1/4	181.75	3635.00
1 1/4	4.170	83.40	4	42.73	854.60	8 1/2	192.93	3858.60
1 3/8	5.050	101.00	4 1/4	48.23	964.60	9	216.30	4326.00
1 1/2	6.010	120.20	4 1/2	54.08	1081.60	9 1/2	241.00	4820.00
1 5/8	7.050	141.00	4 3/4	60.25	1205.00	10	267.04	5340.80
1 3/4	8.180	163.60	5	66.76	1335.20	10 1/2	294.40	5888.00
1 7/8	9.390	187.80	5 1/4	73.60	1472.00	12	384.53	7690.60
2	10.680	213.60	5 1/2	80.78	1615.60			

Hot Rolled Square Bar								
Weight in Pounds								
Size	Per Foot	20'	Size	Per Foot	20'	Size	Per Foot	20'
1/4	0.213	4.26	1 1/8	4.300	86.00	2 5/8	23.430	468.60
5/16	0.332	6.64	1 1/4	5.310	106.20	2 3/4	25.710	514.20
3/8	0.478	9.56	1 3/8	6.430	128.60	3	30.600	612.00
7/16	0.651	13.02	1 1/2	7.650	153.00	3 1/4	35.910	718.20
1/2	0.850	17.00	1 5/8	8.980	179.60	3 1/2	41.650	833.00
9/16	1.080	21.60	1 3/4	10.410	208.20	4	54.400	1088.00
5/8	1.330	26.60	1 7/8	11.950	239.00	4 1/2	68.850	1377.00
3/4	1.910	38.20	2	13.600	272.00	5	85.000	1700.00
7/8	2.600	52.00	2 1/4	17.210	344.20	6	122.400	2448.00
1	3.400	68.00	2 1/2	21.250	425.00			

Rebar

Rebar				
Bar Size Designation	Weight Pounds Per Foot	Nominal Diameter Inches	Cross Sectional Area-Sq. Inches	Perimeter Inches
#3	0.375	0.376	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.650	1.693	2.25	5.320
#18	13.600	2.257	4.00	7.090

Information Table
TAB (front)

Information Tables

Useful Information

Surface of frustum of cone or pyramid = sum of circumference of both ends x $\frac{1}{2}$ slant height plus area of both ends.

Content of frustum of cone or pyramid = multiply area of two ends and get square root. Add the 2 areas and x $\frac{1}{4}$ altitude.

Doubling the diameter of a pipe increases its capacity four times.

A gallon of water (U.S. standard) weighs $8\frac{1}{3}$ lbs. and contains 231 cubic inches.

A cubic foot of water contains $7\frac{1}{2}$ gallons, 1728 cubic inches, and weighs $62\frac{1}{2}$ lbs.

To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by 0.434.

Steam rising from water at its boiling point (212° F) has a pressure equal to the atmosphere (14.7 lbs. to the square inch)

A standard horse power: the evaporation of 30 lbs. of water per hour from a feed water temperature of 100° F into steam at 70 lbs. gauge pressure.

To find capacity of tanks any size, given dimensions of cylinder in inches, to find its capacity in U.S. gallons: square the diameter, multiply by the length and by 0.0034.

To ascertain heating surface in tubular boilers, multiply $\frac{2}{3}$ the circumference of the boiler by length of boiler in inches and add to it the area of all the tubes.

To find circumference of a circle, multiply diameter by 3.1416.

To find diameter of a circle, multiply circumference by 0.31831.

To find area of a circle, multiply square of diameter by 0.7854

Area of a rectangle = length multiplied by breadth.

Doubling the diameter of a circle increases its area four times.

To find area of triangle, multiply base by $\frac{1}{2}$ perpendicular height.

Area of ellipse = product both diameter x 0.7854.

Area of parallelogram = base x altitude.

To find side of an inscribed square, multiply diameter by 0.7071 or multiply circumference by 0.2251 or divide circumference by 4.4428

Side of an inscribed cube = radius of sphere x 1.1547

To find side of an equal square, multiply diameter by 0.8862.

Square. A side multiplied by 1.4142 equals diameter of its circumscribing circle

A side multiplied by 4.443 equals circumference of its circumscribing circle.

A side multiplied by 1.128 equals diameter of an equal circle

A side multiplied by 3.547 equals circumference of an equal circle

To find cubic inches in a ball, multiply cube of diameter by 0.5236.

To find cubic contents of a cone, multiply area of base by $\frac{1}{4}$ the altitude.

Useful Information

TEMPERATURE CONVERSION

A Fahrenheit degree is smaller than a Celsius (Centigrade degree, one Fahrenheit degree being $\frac{5}{9}$ of a Celsius degree.

To convert Fahrenheit degrees into Celsius, subtract 32, multiply by 5, and divide by 9.

To convert Celsius into Fahrenheit, multiply 9, divide by 5, and add 32.

The freezing point of water is 32° F, 0° C. The boiling point is 212° F, 100° C.

WEIGHTS AND MEASURES

AVOIRDUPOIS WEIGHT

27 $\frac{1}{32}$	1 dram
16 drams	1 ounce
16 ounces	1 pound
25 pounds	1 quarter
4 quarters	1 cwt.
2,000 pounds	1 short ton
2,240 pounds	1 long ton

TROY WEIGHT

24 grains	1pwt.
20 pwt.	1 ounce
12 ounces	1 pound

Used for weighing gold, silver and jewels

CUBIC MEASURE

1.728 cubic inches	1 cubic foot
27 cubic feet	1 cubic yard
128 cubic feet	1 cord (wood)
40 cubic feet	1 ton (shipping)
2,150.42 cubic in.....	1 standard bu.
231 cubic in. ..	1 U.S. standard gallon
1 cubic ft.	about $\frac{4}{5}$ of a bushel

DRY MEASURE

2 pints	1 quart
8 quarts	1 peck
4 pecks	1 bushel

LIQUID MEASURE

4 gills	1 pint
2 pints	1 quart
4 quarts	1 gallon
31 $\frac{1}{2}$ gallons	1 barrel

IMPERIAL LIQUID MEASURE

1 U.S. gal.	0.833 Imperial gal.
1 U.S. gal.	3.785 liters
1 Imperial gal.	1.201 U.S. gal.
1 Imperial gal.	4.546 liters
1 liter	0.264 U.S. gal.
1 liter	0.220 Imperial gal.

LONG MEASURE

12 inches	1 foot
3 feet	1 yard
5 $\frac{1}{2}$ yards	1 rod
40 rods	1 furlong
8 furlongs	1 sta. mile
3 miles	1 league

MARINER'S MEASURE

6 feet	1 fathom
120 fathoms	1 cable length
7 $\frac{1}{3}$ cable lengths	1 mile
5,280 feet	1 statute mile
6,080.2 feet	1 nautical mile

SQUARE MILE

144 sq. inches	1 sq.ft.
9 sq. ft.	1 sq. yard
30 $\frac{1}{4}$ sq. yards	1 sq. rod
40 sq. rods	1 rood
4 roods	1 acre
640 acres	1 sq. mile

Useful Information

METRIC EQUIVALENTS

LINEAR MEASURE

1 centimeter	0.3937 inches
1 inch	2.54 centimeters
1 decimeter ...	0.937 in. / 0.328 foot
1 foot	3.048 decimeter
1 meter	39.37 in./ 1.0936 yds.
1 yard	0.9144 meter
1 dekameter	1.9884 rods
1 rod	0.5029 dekameter
1 kilometer	0.621 mile
1 mile	1.609 kilometers

SQUARE MEASURE

1 sq. centimeter.....	0.1550 sq. in.
1 sq. in.	6.452 sq. centimeters
1 sq. decimeter	0.1076 sq.ft.
1 sq. ft.	9.2903 sq.dec.
1 sq. meter.....	1.196 sq. yds.
1 sq.yd.	0.8361 sq. meter
1 acre	160 sq.rods

1 sq. rod	0.00625 acre
1 hectare	2.47 acres
1 acre	0.4047 hectare
1 sq. kilometer	0.386 sq. mile
1 sq. mile	2.59 sq. kilometer

MEASURE OF VOLUME

1 cubic centimeter.....	0.61 cu. in.
1 cubic in.	16.39 cubic cent.
1 cubic decimeter ...	0.0353 cubic ft.
1 cubic foot	28.317 cubic dec.
1 cubic meter	1.308 cubic yds.
1 cubic yard.....	0.7646 cubic meter
1 stere	0.2759 cord
1 cord	3.624 steres
1 liter 0.906 qt. dry...	1.0567 qts. liq.
1 qt. dry	1.101 liters
1 qt. liquid	0.9463 liter
1 dekaliter	2.6417 gal./1.135 pecks
1 gal.	0.3785 dekaliter
1 peck	0.881 dekaliter

1 hektoliter	2.8375 bushels
1 bushel	0.3524 hektoliter

WEIGHTS

1 gram	0.03527 ounce
1 ounce	28.35 grams
1 kilogram	2.2046 pounds
1 pound.....	0.4536 kilogram
1 metric ton	0.98421 English ton
1 English ton.....	1.016 metric ton

APPROXIMATE

METRIC EQUIVALENTS

1 decimeter	4 inches
1 liter	1.06 qts liq./0.9 qts. dry
1 meter	1.1 yards
1 kilometer	$\frac{5}{8}$ of a mile
1 hektoliter	$\frac{2}{5}$ bushels
1 hectare	$2\frac{1}{2}$ acres
1 kilogram	$2\frac{1}{8}$ lbs.
1 stere or cubic meter ...	$\frac{1}{4}$ of a cord
1 metric ton	2,204.6 lbs.

FRACTION AND DECIMAL CHART

$\frac{1}{64}$	0.15625	$\frac{17}{64}$	0.265625	$\frac{39}{64}$	0.515625	$\frac{49}{64}$	0.765625
$\frac{1}{32}$	0.03125	$\frac{9}{32}$	0.28125	$\frac{17}{32}$	0.53125	$\frac{25}{32}$	0.78125
$\frac{3}{64}$	0.046875	$\frac{19}{64}$	0.296875	$\frac{35}{64}$	0.546875	$\frac{51}{64}$	0.796875
$\frac{1}{16}$	0.0625	$\frac{5}{16}$	0.3125	$\frac{9}{16}$	0.5625	$\frac{13}{16}$	0.8125
$\frac{5}{64}$	0.078125	$\frac{21}{64}$	0.328125	$\frac{37}{64}$	0.578125	$\frac{53}{64}$	0.828125
$\frac{3}{32}$	0.09375	$\frac{11}{32}$	0.34375	$\frac{19}{32}$	0.59375	$\frac{27}{32}$	0.84375
$\frac{7}{64}$	0.109375	$\frac{23}{64}$	0.359375	$\frac{39}{64}$	0.609375	$\frac{55}{64}$	0.859375
$\frac{1}{8}$	0.125	$\frac{3}{8}$	0.375	$\frac{5}{8}$	0.625	$\frac{7}{8}$	0.875
$\frac{9}{64}$	0.140625	$\frac{25}{64}$	0.390625	$\frac{41}{64}$	0.640625	$\frac{57}{64}$	0.890625
$\frac{5}{32}$	0.15625	$\frac{13}{32}$	0.40625	$\frac{21}{32}$	0.65625	$\frac{29}{32}$	0.90625
$\frac{11}{64}$	0.171875	$\frac{27}{64}$	0.421875	$\frac{49}{64}$	0.671875	$\frac{59}{64}$	0.921875
$\frac{3}{16}$	0.1875	$\frac{7}{16}$	0.4375	$\frac{11}{16}$	0.6875	$\frac{15}{16}$	0.9375
$\frac{13}{64}$	0.203125	$\frac{29}{64}$	0.453125	$\frac{45}{64}$	0.703125	$\frac{61}{64}$	0.953125
$\frac{7}{32}$	0.21875	$\frac{15}{32}$	0.46875	$\frac{23}{32}$	0.71875	$\frac{31}{32}$	0.96875
$\frac{15}{64}$	0.234375	$\frac{31}{64}$	0.484375	$\frac{47}{64}$	0.734375	$\frac{63}{64}$	0.984375
$\frac{1}{4}$	0.250	$\frac{1}{2}$	0.500	$\frac{3}{4}$	0.750	1.....	1.000

